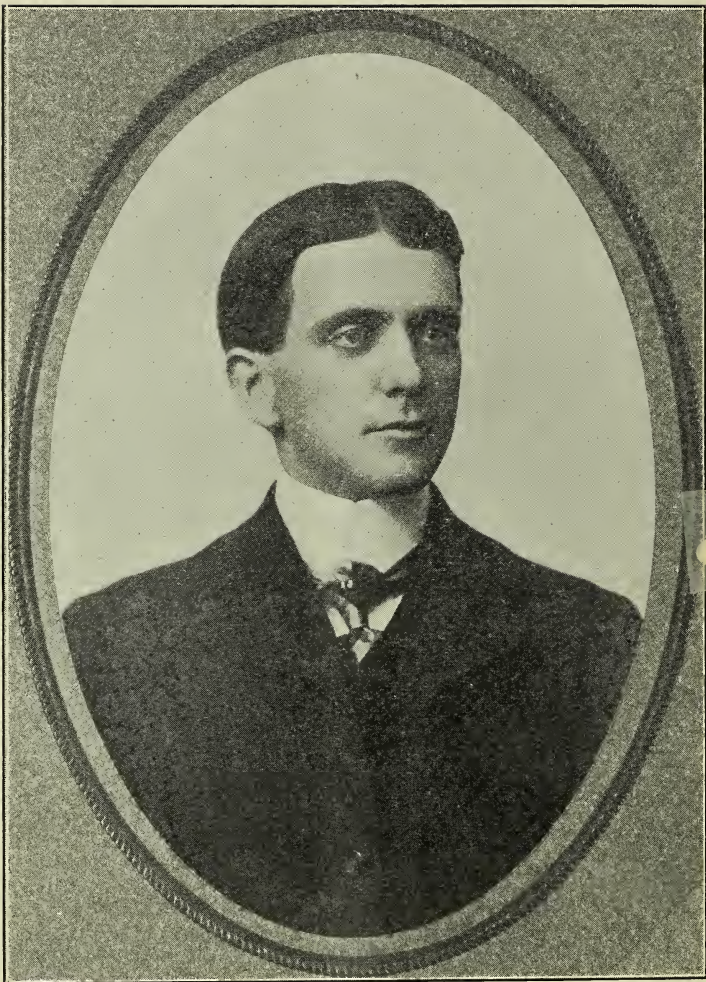


Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



VERNON H. DAVIS.

[See page 165.]

THE AGRICULTURAL STUDENT.

VOL. VII.

OHIO STATE UNIVERSITY, COLUMBUS, MAY, 1901.

No. 9.

TERMS OF SUBSCRIPTION:

One Year	\$0.50
One-half Year30
Single Copies05

While this magazine is published with the approval of the President of the University and the Officers of the College of Agriculture and Domestic Science, the editors are responsible for the statements in all unsigned articles.

Address all communications to the Business Manager, Agricultural Student, Columbus, Ohio.

Entered at the Post-Office, Columbus, Ohio, as second-class matter.

PUBLISHED MONTHLY BY

**THE AGRICULTURAL STUDENT
PUBLISHING COMPANY.**

.....Editor
W. D. GIBBS.....Business Manager

STAFF.

C. B. STEWARD.	C. N. BREESE.
M. B. LAMB.	C. C. HAYDEN.
C. N. MOONEY.	MISS HELEN G. SHELDON.

Contents.

Editorial Chat	163-165
Professor Hunt Honored.....	164
New Assistant in Horticulture ..	165
The Agricultural Extension Movement	165
Our Seniors	167
Agricultural Students at Inter- national Live Stock Exposition	169
"The Spoor Trophy"	170
Insects Injurious to Fruit	171
Progress of Agricultural Educa- tion	175
A Private General Index	178
Athletics at the Pan-American ..	180

EDITORIAL CHAT.

This will be the last issue of THE STUDENT for the college year and we desire to thank staff editors and all others who have contributed to the success of the paper during the year. We have tried to make THE STUDENT the best publication of the kind in the country and we are glad that our efforts have been appreciated by our readers. Now that the year is about closed it is time to think of paying subscriptions. The business manager has visions of improvements in the paper for the next year, but this will depend upon the available funds. Many copies have been sent this year to old students and others likely to be interested in the cause of agricultural education. Have not the nine copies been worth fifty cents to you?

Every County in Ohio

Is entitled to a free scholarship in Agriculture at the Ohio State University. This scholarship is good for the two-year courses or for the first year of the short courses and first year of the four-year courses, and is granted to one student annually from each county in Ohio. If in any county there is no applicant for the free scholarship in the College of Agriculture, then a free scholarship,



good for two years in the College of Veterinary Medicine, may be granted. Each scholarship is valid two years from its grantal and covers the incidental fee and all laboratory fees, but the person appointed to receive its benefits is subject to all the conditions prescribed for admission to the course. The appointments are made by the County Boards of Agriculture, and are not transferable by the appointees. To learn whether the scholarship of a given county for the current year has been granted, inquiries should be addressed to the Secretary or President of the County Agricultural Society. Further information concerning the free scholarships and courses may be obtained by addressing a postal card to the Dean of the College of Agriculture and Domestic Science, Ohio State University, Columbus.

Taking the Short Road.

The Chicago man who desires to make a business trip to New York takes the fast train which makes few stops. Another equally sure way of reaching his destination would be to employ the slower way and walk the distance, but he can not afford the time. The young farmer who desires to know the science and art of his business has two ways open before him. He may take the slow one and spend one-half or more of his active years learning by experience and observation the things he could learn better in two or four years by taking the course in Agriculture at the Ohio State University.

Selling Milk.

The Agricultural Department of the Ohio State University owns a herd of forty cows and retails milk in the city of Columbus. The annual gross receipts from the sale of milk average sixty-five hundred dollars. All of the

work of caring for the cows, milking, separating, pasteurizing, bottling, and delivering the milk to customers is done by students in the agricultural courses. In this way many worthy young men earn a part, and in some cases all, of their college expense who would, without such help, be unable to secure a college education. The University also offers other opportunities for self help in the way of farm work and free scholarships.

The Old Way and the New.

A generation ago young men studied law and medicine under the direction of practitioners, learning their professions largely by experience and observation. Their proficiency, therefore, depended upon the proficiency of the teachers, which, in many cases, was sadly lacking. The young men of today receive their training in schools which are offered and equipped for this special work.

The young men on the farm a few years ago learned their occupation at home under good, bad, or indifferent teachers as the case might be. But, the young man of today who makes the best use of his time and opportunities, takes one of the courses in agriculture at the Ohio State University, Columbus, where trained teachers and splendid equipment are provided. If you are interested, write the Dean of the College of Agriculture for information.

Professor Hunt Honored.

The new Agricultural Building of the University of Illinois was recently completed at a cost of over one hundred and fifty thousand dollars, and it is said that this institution now has one of the finest and best equipped agricultural buildings in the United States. The dedicatory exercises will be held the last week in May, and it is the intention

to have, at that time, addresses by a few of the leading agricultural educators of the country. Professor Hunt, who was for about ten years connected with the agricultural department of this institution as student, investigator and teacher before coming to Ohio, has accepted an invitation to deliver one of the addresses and his subject will be "The Opportunity in Agriculture." THE STUDENT wishes to commend the good judgment of the University of Illinois authorities in their choice of speakers.

New Assistant in Horticulture.

Vernon Hayes Davis was born on a farm in Guernsey County, Ohio, March 4, 1877. He received his elementary education in the district school and spent his vacations working on the farm.

In the fall of 1895 he was elected from Guernsey County to a free scholarship in the Ohio State University, and in the fall of the same year entered the short course in Agriculture.

In the fall of 1897 he entered the long course, from which he was graduated in June, 1900. Mr. Davis' college course was a series of successes. He was a leader in Townshend Literary Society throughout his course and served her in almost every capacity as an officer. He is a member of Alpha Zeta fraternity and a member of the Y. M. C. A.

In athletics Mr. Davis achieved success as a foot ball player, being a member of the team of 1898 and 1899, two of the best teams O. S. U. has ever put on the gridiron. His greatest successes, however, have been as a writer. In 1898 he tied for first place in an essay contest for a prize offered by W. I. Chamberlain for the best essay on "Fifty Years' Growth of Wheat at Rothamstead, England." Last year he

won a hundred dollar prize offered by the Osborne Harvester Co., for the best thesis on "Corn Culture" written by a student of O. S. U. He served as a member of THE AGRICULTURAL STUDENT staff in 1898-99, and as editor-in-chief during '99-1900.

These many honors were bestowed on Mr. Davis only as a reward for true merit. He has always been a thorough and accurate student; and both in class and out universally liked by his associates and instructors.

In the fall of 1900, wishing to better fit himself for usefulness in his chosen profession, Mr. Davis entered the Graduate Department of Cornell University as candidate for the degree of M. S. in agriculture and will graduate in June.

Upon the resignation of Mr. Price as Assistant in Horticulture he was called to fill the position thus made vacant. The Department of Horticulture is to be congratulated upon securing Mr. Davis for this important position.

The Agricultural Extension Movement.

The farmers of the United States have always been designated as the ruling element, the mainstay of the nation; yet it is nevertheless a fact that they have been slow to exercise their power. Men of other callings organize, control, dictate;—the farmer is compelled to make the best of the conditions forced upon him, and take the consequences. In this he does *not* rule. And it is not at all strange when we consider the peculiar circumstances under which he is placed. In fact it can scarcely be otherwise, so long as he remains as he is, socially and intellectually. It is not that he is naturally slow, nor is he stupid, but his mode of living, the necessary surroundings, his isolation and lack of contact with men have given him this character and it is

but natural that his more polished city neighbor should call him "hayseed."

But who is to blame? We have often heard that "All men are created equal," but how far from this do things appear in actual life. We talk loudly of justice and right, yet there is this overwhelming tide of feeling that is bound to exist, and the country lad who has to stem it finds it is just as real as anything in life. Again, we hear much of the honor and dignity of the agricultural calling, but is it commonly considered as such? Isn't it rather the common trouble again,—a noble occupation when we speak seriously, but the butt of ridicule for the masses? Surely it is both, and why? Partly, of course, because of the wrong conception of the multitude; but there are other reasons, and the one which is probably of greatest importance lies with the farmer himself. The lack of advantages, the absence of a stimulus to drive him to his best efforts, the possibility of gaining a living by doing just as his father did, the lack of direct competition resulting from a certain degree of independence, all contribute to a slothfulness of mind and a want of true business principles so often characteristic of the tiller of the soil.

But what is the remedy? For answer our minds naturally turn to the agricultural college, the experiment station, the agricultural journal, the farmers' institute and the agricultural societies. Truly all these are mighty factors in uplifting the farmer, in teaching him better methods, in giving him broader views and new ideals, but there is yet another and very important way in which he may be reached, and one which appeals directly to the masses,—the agricultural extension movement.

This work is already assuming important proportions in some of our

states and is undoubtedly destined to a most successful future. The work in New York is the most advanced and a brief outline of the manner in which it is being carried on will indicate some of the possibilities.

The work is under the immediate control of the Agricultural Department of Cornell University and is supported by a state appropriation. It has been reduced to a definite system with a very able body of officers in charge, some of whom devote their entire time to the work. Under the present system there are two definite lines upon which the work is carried out; that of the agricultural extension work proper through the establishment of a farmers' reading course, the issuing of bulletins, and the conducting of experiments in various parts of the state; and second, that of the nature study of work done in connection with the schools.

The reading course consists of three parts. First, a series of lessons on the fundamental principles regarding soil and plants; second, a series on cattle feeding for both beef and milk; and third, one on orcharding. Each series is intended to cover one winter, thus taking three years to complete the course, while in the fourth year the younger members are urged to enter the ten weeks course in agriculture at the University. The popularity and success of the work is shown by the fact that there are this year 25,000 farmers enrolled.

The experimental work consists of experiments conducted in various parts of the state, one farm or tract in a neighborhood being selected and the work being done by the farmers, under the supervision of the extension officer in charge. These experiments are intended more as object lessons than as a means of ascertaining valuable facts, although the latter is important.

Then there has been introduced this year a course for the farmers' wives similar to that for the men, except that it has to do with work of the household.

Lastly should be mentioned the work being done for the encouragement of nature study and a love for rural things among the children of the schools. This is carried on directly through the teachers, leaflets being issued quarterly which bear upon the subject and indicate the best methods of work. Then in direct connection with this is the banding together of the children into what are known as Junior Naturalist Clubs for the purpose of awakening an interest in nature, in rural affairs and in things connected with rural life. There are enrolled, at present, 25,000 teachers and 20,000 children, which gives some idea of the magnitude of the work. The extension officers consider this one of the most important branches of the work and the one destined to produce the most profound good in the end.

This much has New York done within seven years and other states are conducting similar lines of work. Isn't it time that the people of Ohio should awake to the farmers' need and follow the good example? It is true that conditions are somewhat different in Ohio from those in New York, but they are not radically so. The same need exists and the work is sure to come sooner or later. The sooner we seize our opportunities the better for the farmer and the better for the state. It is painfully evident that the farmer needs help and it is reasonably certain that he will respond to our efforts if he is approached in the right manner. Shall we not endeavor to impress upon our legislators this evident need and the possibilities which exist for advancement in this direction? Let us hope

that the time is not far distant when a determined effort shall be made along some such line as this, and we may be assured that few greater benefits could be bestowed upon the state and its people than the successful carrying out of such a measure.

M. F. MILLER.

Our Seniors.

The Senior Class in Agriculture this year numbers six. Every one of them comes from the farm, and will leave the University thoroughly equipped for usefulness as citizens and for whatever line of work they may take up. Agricultural education is becoming more popular every year and the entering classes at the agricultural colleges are constantly and rapidly increasing in numbers. The demand for college-trained men to take up various forms of practical Agriculture and Horticulture is far beyond the supply, and it is indeed encouraging to see these young men leaving the various schools of agriculture to begin their life work in some one of the various forms of "the most honorable and most healthful occupations of man."

Just a word as to the members of this year's class:

Merritt Harper was born near Grove City, Franklin County, Ohio, August 24, 1877. He attended common school until he was seventeen years of age, when his parents moved to Grove City, and young Harper entered the high school at that place, graduating in '97. In the fall of '97 he entered the long course in Agriculture at the Ohio State University, and graduates the coming June. Mr. Harper is an active member of Townshend Literary Society, and an earnest, conscientious student.

Nelson Prentice Neill was born September 20, 1880, near Sandusky, Ohio.

He attended the district school until '94, and in the fall of that year entered the Castalia High School, graduating in '97. In the fall of the same year he entered the long course in Agriculture at the Ohio State University, and will graduate with the class of 1901.

In college Mr. Neill has been an active member of Townshend Literary Society, and has held the rank of Captain in the Cadet Battalion.

During vacations Mr. Neill assisted his brother in running a creamery and in the cultivation of celery, thus thoroughly fixing the facts learned in his college course. A successful future is predicted for Mr. Neill by his many friends.

Addison Hogan Snyder was born near Barnesville, Belmont County, O., January 30, 1879. He attended the district school until thirteen years of age, entering the Barnesville High School in the fall of '92, and graduating in '96.

In the fall of '97 he entered the University as a student in the Agricultural course, and will graduate in June.

Mr. Snyder has always taken a prominent part in college affairs. He is a member of Alpha Zeta fraternity and also of Townshend Literary Society, having served as President of the latter in the fall term of 1900. He was also a member of the Y. M. C. A., and associate editor of *The Lantern*. At the present time Mr. Snyder holds the position of Student Assistant at the Columbus Station of the United States Weather Bureau.

Cassius Clay Hayden was born on a farm in Perry County, O., December 1, 1871. He attended the district schools and in September of 1891 entered Spring Arbor Seminary, Spring Arbor, Michigan, where he graduated in June, 1895. After graduating he taught

school one year in Athens County, and entered the long course in Agriculture at the Ohio State University in the fall of '96. Mr. Hayden is a member of Townshend Literary Society, and an earnest student, standing well in his classes, and at the same time largely supporting himself by working outside of school hours.

John Cole Perry was born January 30, 1876, in Lorain County, O. He attended the district schools and worked on his father's farm during vacations, until the fall of '96, when he entered the short course in Agriculture at the Ohio State University. In the fall of '97 he entered the long course.

Mr. Perry has defrayed all his college expenses by work at the University during the school year and during vacations. He has shown by his perseverance and energy that any one with these qualities can secure a thorough education, and we trust that his example may prove an incentive to others.

Albert F. Conradi is also a Senior specializing along the lines of economic entomology.

William H. Gilmore, '99, will receive the degree of Master of Science in Agriculture the coming June. He was born in Licking County, Ohio. His early life was spent on the farm and attending the district schools. While a boy Mr. Gilmore determined to secure a higher education, and after attending various preparatory schools decided to enter the Ohio State University as an Agricultural student. He matriculated in the spring of '94 and graduated in the class of '99. Later Mr. Gilmore determined to do advanced work in his chosen profession, and will graduate in June with the degree above mentioned.

The subjects of theses for the class of 1901 may be found in *THE STUDENT* for April.

Agricultural Students at International Live Stock Exposition.

The chief purpose of the first International Live Stock Exposition held at Chicago, December, 1900, was to furnish to the agricultural population of the United States a great educational opportunity, wherein the eye and the mind should be instructed and encouraged to the production of better animals for breeding, marketing and exporting, thus not only encouraging greater consumption of American animals and meats at home and abroad, but also meeting foreign competition and overcoming antagonistic foreign legislation in the only permanently successful way in which they can be met and overcome.

To the organizers and supporters of this Exposition, probably the most gratifying feature thus far, and the most promising and far-reaching in its significance, has been the widespread interest manifested by the young men of the agricultural colleges throughout the land, who together with their instructors attended the Exposition in large numbers. That this interest was of an intensely practical kind was shown by their constant and intelligent study of the exhibits during the week, by the high character of their own exhibits, and by their close competition in the students' judging contests, established for the purpose of giving a practical test and greater incentive to the work done by the colleges.

In the first International Live Stock Exposition there were contributed as prizes in the Intercollegiate stock-judging contests the following:

The "J. A. Spoor Trophy," valued at	\$700 00
Presentated by Mr. J. A. Spoor, President of the Union Stock Yard & Transit Co. and International Live Stock Exposition.	
"Breeder's" Gazette," Chicago, cash	150 00
National Hereford Cattle Breeder's Association, cash.	100 00
Mr. R. D. Burnham, Champaign, Ill., cash.....	75 00
Shropshire Sheep Breeder's Association, cash	35 00
Cotswold Sheep Breeder's Association, cash	25 00
Dorset Sheep Breeder's Association, cash	25 00
"National Stockman," Chicago, cash	25 00

In addition to the above, Clay, Robinson & Co. contributed \$1,000.00 cash in special prizes for stock prepared and exhibited by the Agricultural colleges.

The "J. A. Spoor Trophy" is a bronze statue of a magnificent bull, handsomely mounted on a pedestal of Italian marble, and forms the subject of the illustration as presented. It is a duplicate model executed in France by Tiffany from the original priceless creation of Isadore Bonheur, brother of the famous Rosa Bonheur, and is a very appropriate trophy for such an event.

This prize was awarded to the agricultural college making the highest aggregate with three representatives, and was won by the University of Illinois, the winning trio being Messrs. Richardson, Robbins and Camp, students of that institution. The prize is to be competed for annually. In the contest the aggregate scores were:

First, University of Illinois, Champaign, Ill.....	2,909
Second, University of Wisconsin, Madison, Wis.....	2,769



THE J. A. SPOOR TROPHY.

Third, Purdue University, Lafayette, Ind.	2,459
Fourth, Michigan Agricultural College, Lansing, Mich.	2,446
Fifth, Iowa Agricultural College, Ames, Iowa.	2,362

The Inter-collegiate contest for the Clay, Robinson & Co. donation of \$1,000 resulted in the following distribution:

University of Minnesota.	\$500 00
University of Wisconsin.	220 00
Iowa Agricultural College.	195 00
Michigan Agricultural College	85 00

The competition in these contests was very close, the papers of the students showing a high degree of excellence in training for the result. That this training will have a marked influence in the general betterment of the live stock of the United States cannot be doubted. Classes and special courses in stock-judging have already been established at a number of the prominent agricultural colleges, and the next annual contest is looked forward to with still greater interest.

The second International Live Stock Exposition will be held during the first week of December, 1901, at Dexter Amphitheatre, Union Stock Yards, Chicago, and will be more comprehensive, more complete, and more interesting in every department — notwithstanding the great success of the first International show. The Union Stock Yard & Transit Co. will erect another great Exposition building south of Forty-third street, to Forty-fifth street, also additional barns and other facilities, and the experience of the first show will enable the management to offer to the world this year a grander and better show than has ever yet been seen.

The National Live Stock Association, embracing in its membership one hundred and twenty-six organizations

and representing over \$600,000,000 capital invested in live stock, will co-operate with the Exposition by holding its next annual meeting in Chicago during the show, and the great National breeding record associations will also hold their annual conventions in Chicago at that time, while daily public sales of all breeds will be in progress, more and larger premiums will be offered in the show classes, and every feature of the last show will be carried out on broader lines and with more complete details. This means that through the power of larger organization and wider co-operation the superior excellence and abundance of American animals and meats will be impressed on the markets of the world as never before, and great encouragement and expansion of the industry must follow throughout the whole United States.—Clay, Robinson & Co. Souvenir.

Insects Injurious to Fruit.

Although it has been but a comparatively short time since fruit growers began to take any measures to combat insect pests, it has become a very important factor in the fruit growing industry. As the land is brought under more intensive cultivation the natural food plants of many insects are destroyed, and they are, in a measure compelled to feed upon cultivated plants. The soil is also gradually becoming depleted, so that the plants cannot put forth the vigorous growth against insect attacks which they formerly did. Add to these the importation of noxious insects due to our immense foreign commerce, and also the increased competition of fruit growers, and you have accounted to a large extent for the rapid

development along the line of combating insects.

In discussing the insects injurious to fruits, one scarcely knows what is the most logical manner to proceed, since there are so many different kinds of insects, so many kinds of fruits, and since the insects may be injurious to the fruits in so many different ways. We may have insects which affect the fruit itself, and insects which affect the plant which bears the fruit; we may have insects which do damage by biting, and insects which suck nutriment from the plant or fruit. Some insects do the most injury at one stage of their development, and some at another stage; some insects multiply and develop in one way, and some in another. So we see that in order to successfully combat insect pests it is necessary to be thoroughly familiar with a great many of these points in the life-history and habits of the enemy.

Some persons place great stress upon the belief that noxious insects should be kept in check by their natural enemies. While this doctrine is no doubt true in a measure, and to a greater degree than the majority of people realize, and while we recognize the fact that a great work has been done, and is being done in discovering and importing the natural enemies of our most destructive insect pests, it is also true that there are times when it is an absolute necessity for the successful fruit grower to provide artificial means in order to protect his crops.

In a paper of this sort we can only mention in the most brief manner a few of the very worst insects which prey upon fruits and fruit plants, and possibly suggest a few of the more simple remedies.

One of the most common and at the same time most formidable insect enemies in the United States is the Cod-

ling Moth (*carpocapsa pomonella*) which does much damage to the apple and pear. Owing to the fact that the larva must gain access to the fruits through the opening in the calyx end, it cannot affect the stone fruits. The moth or miller lays its eggs in the blossom end of the young fruits, a single egg in a fruit. When the larva hatches it burrows its way to the center of the fruit, which is so affected that it soon falls to the ground. This loss is not usually great, for there are as many fruits left as can properly develop. But the larva emerges from the apple, spins its cocoon under the bark of the tree, or in some protected place, and in a few weeks the adult moth appears, and deposits eggs for a second brood. By this time the apples have reached considerable size and usually do not fall off, but are greatly reduced in quality.

Two sorts of remedies are practiced. Some endeavor to destroy the larva while in the fruit, and for this purpose they spray with poison while the fruit has its calyx end turned upward so as to receive the poison. This is usually quite effective for the first brood, but by the time for the second brood the calyx end of the fruit is usually turned downward and but a very small amount of the poison is placed in the way of the insects. Various methods are employed to destroy the larva. Sheep, or swine are pastured under the trees to consume the affected fruits that fall; bands are placed around the trunk to offer an inviting place for the larvae to spin their cocoons, and any cocoons found beneath these bands are destroyed. Either of the methods mentioned are very efficient.

Another very destructive insect, and one which attacks not the fruit, but the tree, is the Roundheaded Borer (*Saperda Candida*). The adult is a night-flying beetle which deposits its eggs late

in the spring in the bark of the tree, near the surface of the ground. When the larva hatches it bores into the solid wood of the tree, and its presence may be detected by the borings seen on the ground. About the only successful means of combating the borer are by digging out the larvae with a knife, or placing some repellant on the bark of the tree to prevent the deposition of eggs.

A most destructive insect, and one which preys upon the foliage of the tree is the Tent Caterpillar (*Clisiocampa Americana*.) The larva is hatched in the spring, as soon as the leaf-buds begin to open. It is then very minute, but grows rapidly until it is two inches long. During this time a colony of them spin a silken nest between the forks of branches, which forms their home, and they issue from this nest to forage over the tree. It then spins a yellow cocoon, from which there issues, in the latter part of the summer, a yellowish brown moth, which lays its eggs and dies. The eggs are layed in rings, containing about 300 each, around the smaller branches. They are protected through the winter by a water-proof varnish. The best method of destroying the insect is by cutting off and burning the egg clusters, which may be done in autumn or winter.

The Curculio (*Conotrachelus nemophar*) is one of the most pernicious enemies of the stone fruits. The adult is a small insect, not more than a quarter of an inch long, and is of a dark brown color, slightly variegated with lighter colors. The head is quite elongated into a sort of a beak. This insect lays its eggs in the young fruit while it is quite small, and always makes a crescent-shaped incision near the place where the egg is deposited. Some entomologists believe this to be done to mark the fruits containing eggs, and

prevent the deposition of more than one egg in a fruit. The egg soon hatches into a small white larva which enters the body of the fruit and usually causes its premature fall to the ground. Soon after the fall of the fruit the larva enters the earth and becomes an adult insect. They can only fly short distances, and are much the more active in the heat of the day. Some have endeavored rather successfully to exclude them from their orchards by building barricades. Among the remedies mostly resorted to are such repellants as lime-wash, tobacco, salt, &c. A very successful destructive method consists in jarring them down upon sheets and destroying them. Swine destroy a great many by eating the fallen fruits containing the larvae, and fowls will pick up a great many of the adults as they come out of the ground.

The Rose Bug (*Macrodactylus subspinosus*) is an insect which becomes quite destructive in some seasons. It is a brown beetle, almost one-half inch in length, and a very ravenous feeder. It does great damage to early cherries, eating both the foliage and the fruit, and it also sometimes preys upon young apples. So far as is known no very effective remedy has been found for this insect where it occurs in large numbers. On small bushes they may be shaken into vessels containing kerosene or something of the sort.

There are two or three enemies of the currant and goose-berry, known as Currant-worms, which have much the same life-history, and should be treated in much the same way. They are green worms, usually with some markings, and when they make their first appearance, the leaves should have a thin coat of powdered hellebore dusted upon them.

The Canker Worm, which preys upon the leaves of the apple is a very ser-

ious enemy, of which there are now two species recognized. The spring Canker Worm (*Paleacrita vernata*), and the more common fall Canker Worm (*Anispteryx pometaria*.) The larva is a variable colored measuring worm, which attacks both the fruit and leaves. The adult female is a large wingless insect, and one of the most efficient methods of combating the pest is by placing bands of some substance around the tree to prevent the female from ascending and depositing her eggs.

The May Beetle, or what is more improperly termed the June Bug, is an insect that does great damage in some localities. The adults may do some injury by eating the foliage of the trees, but greatest injury is done to the roots of plants by the larva, or "white grub." Strawberry plants, especially, suffer from this pest. No satisfactory method of fighting them has been discovered as yet. If swine be turned into the fields where they occur they will feed upon the grubs. Trap-lanterns have also been used to destroy the adults, but many beneficial insects are destroyed at the same time.

There is a class of insects which prey upon our fruits, and fruit-bearing plants, which do injury in a different manner from those before mentioned. I refer to those that obtain their nourishment by sucking. While many most serious pests belong to this class and while they vary somewhat in life-history, the part of the plant affected, and the time of infection, we cannot speak of them specifically in this brief sketch. Some of the worst, however, may be given as the various forms of Aphides, the Leaf-hoppers, the Plant Lice, the San Jose Scale, &c. Quite efficient remedies have been found for many of these, and are now extensively used by

successful fruit-growers. They mostly consist of some substance that destroys, by mere application, to the body of the insect. Owing to the fact that they are sucking insects, it is impossible to kill them by applying poison to their food plant. But as they are compelled to breathe by means of pores in the skin they may be smothered to death by means of a substance that will close these pores. It has been found that grease or oil will accomplish this, so that some form of them is found in almost every remedy. Among the most efficient are whale-oil soap solution, kerosene emulsion, fish-oil soap solution, &c. Some of the most active forms, as the Leaf-hoppers, may be entrapped and killed by mechanical means, such as scaring them onto canvas coated with tar or a similar substance.

As to the time to apply the various remedies for insect pests, the grower must use his judgment, and keep a constant and careful watch for the appearance and development of the enemies to his crop. The efficiency of almost all remedies depends to a large extent upon the timeliness and thoroughness of their application. Owing to the various factors that may, or may not be present, it is absolutely impossible to lay down any fixed rules that will apply in all cases, but he who expects to make a success of fruit-growing must acquaint himself with the life-history and habits of all insects which prey upon his crop, and then be ever on the alert for their first appearance, and ever ready to strike when he sees an opportunity to destroy a goodly number. He must be ready to experiment and to profit, not only by his own experience but also by the experience of others. By so doing he becomes familiar with the best methods of combating the common pests, and

at the same time "keeps abreast of the times" both as to the new remedies for old insects, and the remedies for any new insects that may trouble him.

A. H. SNYDER.

Progress of Agricultural Education.

BY ANDREW M. SOULE.

The difficulties that beset a course of agricultural education are familiar to students of this question, though to the uninitiated they are not easy of comprehension. The hardy pioneers who hewed out from the primeval forest a home for themselves had little interest in improved implements and advanced agricultural methods. They were suspicious of anything in the nature of an innovation and held tenaciously to the principles and methods of their forefathers. The virgin soil produced abundantly and it was unnecessary at first to give attention to the nice points in cultivation or to the fertilization of the land. This condition of affairs promoted the early belief that science as related to agriculture was unworthy of consideration. The limited means at the farmers' disposal and the hard labor required in obtaining a living made them skeptical about the returns to be secured from new implements and machines, or the expenditure of useless labor in the correct scientific cultivation of a crop. Thus it was that it took many years to overcome the personal prejudices of the farmer and to educate him to the point where he could appreciate the errors of the old régime and comprehend the necessity of studying the science and business of agriculture in a rational way. Considered from this standpoint, it is easy to understand why the development of agricultural education has been very slow down to the present date.

In addition to these drawbacks, when agricultural colleges and experiment stations were first established, there were no competent instructors at hand, and there was no definite line of policy. In many instances the work drifted eventually into the hands of politicians who wished to use the money belonging to these institutions for private ends and fill into the hands of the old literary colleges who used them for the better purposes of general education. Thus the agricultural colleges and stations were unable for many years to perform the legitimate work assigned to them. In a few instances only did the agricultural institutions established in America perform effective work from the beginning. The difficulties encountered by the instructors in those early days are not comprehended even to-day. There was no pedagogic form of teaching agriculture; text books suitable for instruction were unobtainable; it was a line of work entirely new to all interested. It requires even to-day in our best colleges special training of several years to make a competent instructor in agriculture or an experiment station investigator. The result was that the best of the men engaged in these colleges had first to read, study, and collate material for use in their work before they could give the instruction that was desirable. This occupied many years of valuable time, but a gratifying result has at last been obtained.

For a long time the idea held sway that agricultural education to be successful must be entirely practical. The idea of practice as then understood meant that all students attending an agricultural college should perform a certain number of hours of manual labor every day, in the field, in the barn, or in the garden. In certain respects this method was beneficial, but so much

plowing, hoeing, and the handling of tools with which they were already familiar was required that it failed to accomplish the end in view. The scientific principles underlying plowing and the proper construction of farm implements and the reasons for budding, grafting, etc., were not taught by this system. The simple performance of manual labor naturally grew distasteful to the student and the agricultural course was for this reason very unpopular.

The present method of teaching agriculture which has developed within the last decade is quite different. This has been brought about by the changed conditions in the agricultural college. A better atmosphere pervades them now. Specialists are engaged in nearly all of its departments. The instructor is prepared to profit by the experiences of those who have preceded him and to determine the best line of policy to pursue in each subject. The endeavor is to demonstrate the value of improved methods in feeding live stock; the advantages of cultivating the soil so as to conserve moisture; the utility of various farm implements and their specific action on the texture of the soil; economical and correct methods of fertilizing the land; preparation, manufacture and handling of dairy products; and the best methods of breeding and managing live stock. This has given a practical trend to the instruction in agriculture which is based strictly on the scientific principles. In other words, the exclusive, theoretical, and extremely practical instruction of the past is now combined with laboratory and field exercises—a correct and happy solution of a difficult problem. In support of this statement it is observed that the students who have received this kind of training have returned after graduation

to their fathers' or their own farms, and by reason of the knowledge secured in college have succeeded beyond the highest expectations of their friends. This has done much towards raising the agricultural colleges in the estimation of the farming community and has been the best advertisement they could secure, as it has demonstrated beyond doubt the feasibility of agricultural education; in fact, its necessity for successful agricultural practice.

The future of agricultural education, therefore, seems to be bright indeed. We have now competent instructors and the moral support and sympathy of the farming community. The farmers are aware of the merits of agricultural education when properly given; they perceive the advantages to be derived; and the demands they are making on the colleges for trained men are greater than the supply.

While there is much that is encouraging in all this, it still is a matter of keen regret that general indifference should prevail in some quarters with regard to the necessity of agricultural instruction. The teacher in the agricultural college finds it a difficult matter to give the proper instruction to the student he receives. The best students of these colleges come from the rural districts and should be thoroughly interested in their work. The chief reason the young men are so anxious to leave the farm for the city is because they know nothing but the drudgery of it; therefore they take no interest in it and they see nothing ahead of them but a continual grind. Instead of being taught to study nature and to admire her wonderful works, they are not brought into touch with her and do not appreciate the marvelous changes that take place in the growth and development of the plant and in the transformation of the

mineral matter and elements of the soil into fruit and grain. We believe that if they were taught these things in youth as they should be our agricultural colleges would be crowded with young men who would come here with a better understanding of what they needed, and with a clearer conception of the importance of agricultural education.

It is therefore a great misfortune that agriculture is not taught in the public schools. A course of nature study should be compulsory in order that the youth may be informed about the methods and products of plant and animal life of which the country boy now grows up in total ignorance. This is a sad picture and surely there is culpable neglect somewhere. It is surprising, therefore, to know that a strong opposition has developed in some sections to teaching agriculture in the public schools. A good many have maintained that it is impracticable, as many of the public school teachers have little sympathy with the work. They claim that these teachers simply use the public schools as a stepping stone to something else; they are interested in law or the classics and have no love for nature, science, or agriculture. The difficulty of securing suitable text-books is a serious one. Recently some excellent books have been issued, and thus this stumbling block has been removed. Again, the needs of laboratory facilities have been suggested. It might be an advantage to have some simple laboratory apparatus to be used in this work provided the teacher was interested enough to use it and to read and study the text-books now procurable. It helps much to take the children for strolls and walks through the woods, garden, farm or orchard where many lessons may be taught that would be immensely useful to them throughout life and would aid

them materially in their work on the farm in years to come.

It is important that we study nature in youth because we must be governed in all farming operations by nature's laws. If we infringe on these laws, we surely suffer. When a crop fails, it is often traceable to the fact that we have outraged nature and do not realize it. If we strip the soil of humus, if we take away from it the elements of fertility, if we cultivate it to exhaust it of moisture, we cannot expect reasonable returns for the labor expended upon it. But such is the position that many of our farmers occupy to-day through ignorance. A study of nature and of improved farm methods in the public schools would have given them a different idea of their work and would indicate the necessity of conforming more nearly to Nature's laws.

The losses incurred in the United States through ignorance of the simple elementary principles of science amount to millions of dollars every year. For example, it is very important to fall plow land under certain conditions, because by so doing it will be exposed to the frosts of winter and this mighty force will tear the fragments of earth asunder and fine and refine them as it works and reworks them during the long winter months. This is exactly what we want done. But why is it important? Since the moisture is held as a film around the soil grain, the more grains of soil there are, the more water it will hold, other things being equal. Then, the finer the soil, the more surface is exposed for the absorption of plant food and the more easily can the tender roots of plants penetrate it. Thus by a study of this action of nature and of the soil condition sought, it is found that frost will do unaided what it would take many teams and laborers days to accomplish in fin-

ing the soil and making a suitable seed bed.

The proposed remedy for the existing situation is within the reach of the farmers. They can demand the needed legislation and see that the principles of agriculture are correctly taught in the public schools. The child's mind is especially susceptible and things may be impressed upon it readily that would be of inestimable value to it in after years. It is true, the farmer may learn many things from the school of experience, but it is the most expensive school on the American continent. Dame Nature keeps one in school a long time. As is often the case, a farmer may wrestle for years and years with some simple problem that some other person, more fortunate than he, may have solved in a very easy manner, while if he were in possession of this knowledge he could make a wonderful saving in his operations because he would understand the laws of nature and how to work in accord with them.

Statistics show that the mass of our population does not advance in the rural schools beyond the rudiments of an education. Here then, is an added and particularly urgent reason why agriculture should be taught in the public schools. Is it right, is it fair, is it just or even sagacious, to permit this subject of primary importance in rural economy to be grossly neglected when the majority of scholars have only this one limited chance to secure the sadly needed information on this all important subject? Surely it is lamentable that the youth of the rural districts are not supplied with the simple and elementary principles of an agricultural education.

Bear through sorrow, wrong and ruth,
In thy heart the dew of youth,
On thy lips the smile of truth.

—*Longfellow.*

A Private General Index.

Every student should construct an encyclopedic index of general information as he goes along; and every person should be a student, especially if he has once been a college student. He will hear things which he would like to remember and see things in print which he does not expect to see again. Particularly is this true in the case of the agricultural student: the facts of interest to him are so varied and the amount of information which it is necessary for him to acquire or to have at hand is being augmented and modified at a lively rate. The papers publish so-called indexes, most books are indexed, but only a few are really well indexed. It is generally considered sufficient if the index to a periodical contains the titles of articles, and indeed this is about all that is practicable.

The Experiment Station Record is well indexed, but this covers only a fraction of the field which is of interest to the farmer. Moreover a man's needs are not peculiar because of his occupation, but rather on account of his differing possessions, capabilities, or tastes.

One of my teachers, and strangely, a professor in one of the conservative old-style colleges, emphasized the desirability of carrying a note book in which one could write down at the moment any bright idea that might chance to come into his head. "If this is not done at once," said he, "the thought will probably be lost to you forever."

I do not know of any of his pupils who have jotted down any bright thoughts of their own, but by extending the idea to miscellaneous reading I have accumulated a note book of information which is a source of satisfaction and I hope of growing value.

I have seen busy men that put me in mind of a chicken with its head off. A

short time ago an eminent teacher wrote at the head of his article in a leading agricultural and stock paper: "Cut this out." A few days later a practical contributor lamented that good things seen in print are often lost. Truly it is an expensive task to read over a volume or two in search of a particular bit of information.

The suggestion I have to offer may be thought impracticable by some, and so far as I know may be subject to the criticism of being out-of-date, but at any rate I know of no better way of avoiding the necessity of ever reading the same book or paper twice. Such parts as contain a useful bit of information can be found in an instant. I assume that a man will know what he will want long before he is thirty.

I use cards 3 by 5 inches. Following is a sample of one that has been filled:

Any card must have a caption, simple or complex, to determine its place alphabetically. This is the only phase of a card devoted to notes of speeches or information having a verbal origin which requires consideration, and I will not attempt to lay down specific rules; the operator will work out his own system anyway.

The card here exhibited shows a simple heading, with merely a number to show how many of the same kind go before. The information might better have been classified and double headings used, but better as it is than not at all. By the time the fortieth card on this general subject is reached, I find the following: *Cattle—Shorthorns—Duchess.*

Abbreviations of the names of books are desirable when they are used often. In this case J. N. stands for Johnston's

CATTLE².

Howe's Library, 469.6, Origin of Australian.

Virgil, 402 (1.259), Breaking Calves.

Wis. Ag. Rpt., Vol. 28, 137.5, Shorthorns vs. Jerseys. 250, The Guernsey Cow. 226.4, 230 and 233, "Handling" Beeves.

J. N., I, 164.9, of New York—Devons prevail (1849), 165.1, Shorthorns South and West, 1849.

Am. Ag. '81, 38.5, Steer Dresses 56 to 100 live wt.

Wis. Inst. Bul. 7, 149 2-9 and 153 1-1, Cattle Ties.

Ruskin Dr., 112.5, Trees "Gnawed Straight at the Cattle Line."

Wealth of Nations, I, 162, Degeneracy of Early Am. Cattle.

Wis. Bd. Ag., Vol. 27, 263, 7, Dehorning Discontinued in Ireland. 266.3, Vets. of Gt. Britain Condemn Dehorning.

Riverby, 59.7, Backwoods c. always famished for salt.

A drawer full of these cards is a book the pages of which can be taken out and rearranged and new pages added without limit. No other sort of book possesses such advantages. I had a printer make some, but better ones can be purchased in the market. The style adopted by the American Library Association is conveniently ruled.

Notes on North America, and the explanation of this fact is found on a card headed *Abbreviations*. 469.6 signifies page 469, a little below the middle, or, six-tenths of the way down. In case a page is composed of several columns a common fraction can be used; the numerator may be the number of the column and the denominator represent the

relative distance from the top, or more consistently, the latter should be used for the numerator.

Books and periodicals will each fall into two classes: Books are (1) those which you own, and (2) those which you borrow; periodicals will either be preserved or destroyed. Those which are destroyed may once in a great while contain an article worth preserving and this furnishes the only excuse for a scrap book, which should be paged like any other book, but not contain very many pages. A paper which is worth taking is worth preserving. I bind papers and bulletins with brass wire, a brace and small gimlet bit, and a frame in which about a half inch in thickness of the papers is held firmly. A volume is bound in 15 or 20 minutes, covered with cardboard backs, and is just as convenient as any book. A printer will trim the edges for a penny or so per volume.

Books which you own can be marked up considerably, but this may not be necessary unless you wish to review them consecutively. Entries referring to these need not be so elaborate as those referring to books which you may not see again. In the latter case the index will partake more of the nature of a cyclopedia.

Inconsistencies can be corrected by cross references and double entries. Envelopes 3 by 5½ (cutting off the half inch at the end), may often be convenient for filing certain documents. The work need not become burdensome nor the index unwieldy. The experience of most people will be that even the best books dress off more than an ordinary steer.

KNOTT C. EGBERT, '90.

At the annual meeting of the Inter-Collegiate Association in New York in February a resolution was adopted in-

dorsing the Pan-American Inter-Collegiate games to be held in Buffalo in the spring. These games are to be under the direction of the Committee on Sports, whose members all are college men, and will take place in the Stadium on the Exposition grounds on Friday, May 31st, and Saturday, June 1st. Following, as it does by a week, the regular Inter-Collegiate Meet in New York and several of the western track meets, the Pan-American Meet is sure to draw competitors from all sections of the country. Such an opportunity for a thoroughly national meet of college athletes is rarely offered and it is to be hoped and expected that college men generally will show the interest and give the support that the occasion demands. The meet will be conducted under the rules of the Inter-Collegiate Association and all the judges and officials will be college men of well known reputation and experience. Handsome medals will be given to the three first men in each event, and to the colleges scoring the highest number of points trophies will be awarded.

THE PRINCIPLES OF AGRICULTURE for Common Schools. By I. O. Winslow. American Book Co., Cincinnati.

This little book has been written to supply the demand, in our public schools, for a short, comprehensive treatise of the fundamental principles of agriculture, suited to the needs of pupils from 12 to 14 years of age. The first few chapters are devoted to such leading facts and principles in the natural sciences as bear directly upon agriculture and rural life. Every parent, whether living in the country or the city, would do well to place a copy of this book into the hands of the children for the teachings contained therein are essential to the education of the young whatever may be their after pursuits in life.

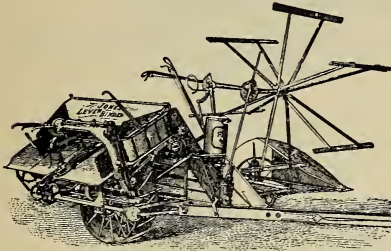
ADVERTISEMENTS.

LIGHT . .
RUNNING

PLANO

BINDERS. MOWERS. HAY RAKES.
SICKLE GRINDERS, LEAD THE WORLD.

THE JONES LEVER BINDER



Is the **highest** attainment of the age, a marvel of simplicity and a model of symmetry, beauty and strength. The sweeping victories it has achieved in hundreds of actual field contests have made it the acknowledged favorite of the world.

For simplicity, durability, adjustability, lightness of draft and ease of management, the Jones Lever Binder has no equal. The Steel Lever displaces the train of cog wheels used on other machines, lessens the weight and simplifies the work. It has the simplest knottor in the world, the most vital part of a binder—never fails and cannot get out of order. Its powerful carrying spring adds life to the machine and makes it ride easy. Its reel with our patent friction clutch, will not break like other reels when striking the limb of a tree or obstruction in the grain. It is a modern, simplified machine, up-to-date—just what the farmer wants. Made of steel and malleable iron, it possesses the enduring qualities never before reached in a harvesting

machine. No cheap castings, no weak spots.

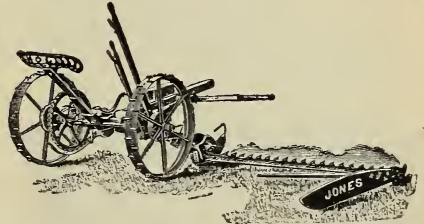
THE JONES CHAIN MOWER

Noiseless, light running, keen cutting. It possesses every improvement known to grass cutting machines and is without an equal. In thousands of meadows throughout the civilized world this simple mower, with its powerful cutting qualities, has won first place for supremacy and perfect work. With it we challenge the world and meet any competitor in a field of actual contest. It is annually sent out by tens of thousands and wherever you find one its owner will tell you "It is the most perfect machine on the farm."

No delicate toy fixtures or ball bearings to take out and clean and tinker with when time is valuable.

Everybody knows that the sprocket and chain produces far less friction than cog wheels, that they are longer lived, and the application of power is more direct. This is a scientific fact. Harvesters and binders used to have cog wheels. They are now chain drive. Why? Because of its superior advantages. Who introduced the Chain Drive Harvesters? The Plano Manufacturing Company. Who fought and denounced the chain drive principle on harvesters? Our competitors. But they were finally forced to follow in the path of the Plano and would be glad to offer you a Chain Drive Mower today if it were possible for them to purchase the right to manufacture.

There are no gears in the Jones Chain Mower to wear out, no lost motion, no vibration, no noise. The bearings are always tight. All the power is applied directly to the desired result—CUTTING GRASS.



THE PLANO MFG. CO., Chicago, Ill.

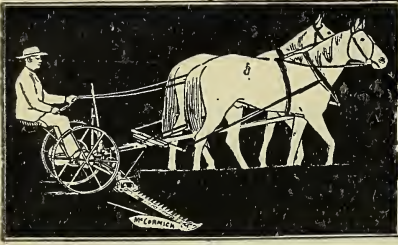
W. B. Smith & Son,

..HOLSTEIN CATTLE..

2488 WEST BROAD ST.

Columbus, Ohio.

ADVERTISEMENTS.



New 4 Mower.

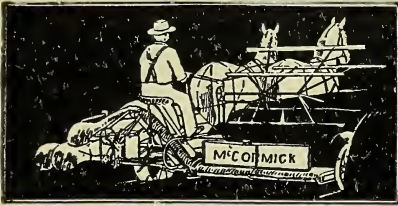
McCORMICK

BINDERS AND MOWERS

Stand in the Front Rank in all Contests

**Easy to Operate,
Convenient to Handle,
Light Draft, Most Durable,
Work Perfect.**

BUY ONE AND GET
SATISFACTION. ❁❁



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.

COLUMBUS, OHIO.

The Gold Standard :::

has never been discussed in our advertising. It never will be. Our work is to maintain the Salt Standard. The following letter from a Pennsylvania creameryman suggests that a Salt Standard is necessary:—

Worcester, Pa., Jan. 26, 1900,

Mr. H. W. Gross:

Dear Sir:—We are in the market for "Salt that's ALL Salt." We take DIAMOND CRYSTAL for our standard. It's as good as the gold standard.

Yours truly, A. CUSTER.

Farmer's Creamery Association.

Creameries that use DIAMOND CRYSTAL often express surprise that all others do not follow their example. They can't see why anyone should prefer the lower grades. We can't explain, but we can say that a majority of the creameries, and some leading salt manufacturers are free to say that

THE SALT STANDARD

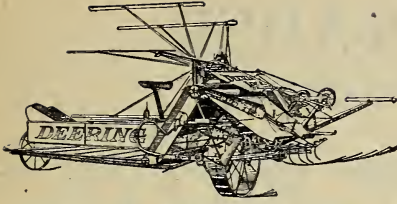
::: OF EXCELLENCE IS :::

DIAMOND CRYSTAL

Perhaps you would like to know what the leading schools and leading chemists have to say on this subject. If so, address

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

ADVERTISEMENTS.



Light Draft Deering Ideal Binder.

DEERING IDEAL BINDER

Makes Harvesting Easy.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ❁ ❁

Made in the Largest Harvest Works
in the World.

First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

—CHICAGO.



State Fair Prizes

All Prize Winners at the Iowa, Minnesota and Nebraska State Fairs, just held, used Wells, Richardson & Co.'s Improved Butter Color. Here they are:

Iowa

Elgin Cry. Co., Atlantic, 1st score 99
F. J. Mabie, Carlew, 2d score 98

Minnesota

Aage Vind, Litchfield, 1st score 98
Jno. Fridner, Stroät, 2d score, 97½

Nebraska

So. Platte Cry. Co., Teek, 1st score 98
Harding Cry. Co., Norfolk, 2d score 97

For Sale by all Dairy Supply Houses.

“The Kind that has no Mud.”

ADVERTISEMENTS.

PROF. W. J. RADER,

ART ACADEMY OF DANCING,

199½ SOUTH HIGH STREET.

Citizens Phone 1456.

Will organize classes on Monday, Tuesday, Wednesday, Friday and Saturday evenings.

For children, Saturday afternoons.



✿ ✿ RATES OF TUITION: ✿ ✿

Gentlemen, per term of ten lessons	- - - - -	\$5 00
Ladies, per term of ten lessons	- - - - -	\$3 00
Children, per term of three months	- - - - -	\$4 00

Our academy is furnished with electric fans.

Academy open from 11 a. m. to 11 p. m. daily.

✿ ✿ PUPILS CAN ENTER AT ANY TIME ✿ ✿

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noises in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., - - COLUMBUS, OHIO

Discount to Students and Faculty.

All Books of the O. S. U. Library
are bound by

The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service

Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs. ❀ ❀ ❀ ❀



Every State Institution

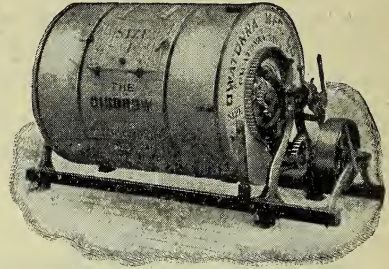
Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

DISBROW Combined Churn and Worker.

Some say it does all we claim
Others say we don't claim enough.

MR. BUTTERMAKER!

Can't you induce the manager of your creamery to get that



DISBROW Combined Churn and Worker he was talking about last spring? It would make your work twice as easy this hot weather. The butter would be worth more, too, if it was made in a Disbrow, away from the heat, flies, bad odors, etc. **Show him where it would be money in his pocket to get a DISBROW.** We'll send you a booklet to help you show him, if you'll drop us a postal card.

OWATONNA MFG. CO., Owatonna, Minn.
SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn. Waterloo, Iowa. Kansas City, Mo. Omaha, Neb.
General Agents Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Eigin Style
White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes,
Refrigerating Machinery, Boilers and Engines, American and Lusted
Printers, Genesee Salt, Potts Pasteurizers, etc.
We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

* * Columbus, Ohio.

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

America's Leading Horse Importers ..



WIN ON TWO CONTINENTS.

Six first prizes at the Iowa State Fair.

Seven first prizes at the Ohio State Fair.

Every possible first prize except one at the Paris Exposition with their Percheron and French Coach Stallions.

We buy in France and import every stallion possessing a high order of merit. If you want the best you will buy of us.

McLAUGHLIN BROTHERS,

Sixth and Wesley Aves.

COLUMBUS, OHIO.

FIVE :
BIG : : :
FLOORS

Filed with Autumn Mer-
chandise--the dependable
kinds only : : :

Nothing shoddy or full of
hidden flaws at our address.

Z. L. WHITE & CO.

102-104 NORTH HIGH ST.

LADIES' AND CHILDREN'S OUTFITTERS — MEN'S
FURNISHINGS — DRAPERIES AND
HOUSE FURNISHINGS.

ADVERTISEMENTS.

We have furnished the University and a large number of Professors and Students with

COAL



for the past three years.

MURRAY CITY COAL CO.

TELEPHONE 1435.

YARDS { Lane Avenue and H. V. R'y Crossing.
West Fifth Avenue and H. V. R'y Crossing.

Ohio Medical University.

DEPARTMENTS OF MEDICINE, DENTISTRY AND PHARMACY.

Four years graded course in Medicine, three in Dentistry, and two in Pharmacy.
Annual Sessions, seven months.

All instruction, except clinical, by the recitation plan.

Students graded on their daily recitations and term examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted, and equipped with modern apparatus. Abundant clinical facilities in both Medical and Dental Departments. **CONSIDERING SUPERIOR ADVANTAGES FEES ARE LOW.**

|| Sessions for 1900=1901
|| Begin Wednesday, Sept. 12. 1900.

For Catalogue and Other Information, Address
GEORGE M. WATERS, A. M., M. D., Dean, Medical Dep't.
OTTO ARNOLD, D. D. S., Dean, Dental Dep't.
GEO. H. MATSON, JR., G. PH., Dean, Pharmacy Dep't.

OHIO MEDICAL UNIVERSITY,

700-716 North Park Street, COLUMBUS, OHIO.

ADVERTISEMENTS.

SMITH'S Academies of DANCING, DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,
Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,
Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.

WM. BURDELL, JR.

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur
Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only. Send for
Catalogue.

81 North High Street. COLUMBUS, OHIO.

COME and use our tele-
phone, consult our
directory, and buy your
postage stamps at . .

KILER'S PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.

CHR. HANSEN'S



DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strong-
est, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is
guaranteed the strongest in the market, and in
every respect superior to every other except the
Danish.

Rennet Extract, Cheese Color, Rennet Tablets,
and Cheese Color Tablets for Farm Cheese Mak-
ing, Lactic Ferment, Marschall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

Chas. G. Beck

Palmer & Beck

Slate and Metal Roofing

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St. COLUMBUS, O.
Telephone 1862.

You Should Know That

: Star Wind Mills:

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.
Galvanized Steel and Wood Tanks.
All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

FARM SEEDS, VEGETABLE AND
FLOWER SEEDS, BULBS, &c.

High-Grade Mixed Lawn
Seeds a Specialty.

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm.

COLUMBUS, OHIO.

The Kauffman-Lattimer Co.

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty.

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition


AT BUFFALO IN 1901

Best reached via. "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.
Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.



The Acknowledged Headquarters for









CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town. Columbus, O.

Blackwood, Green & Co.

BUILDERS' HARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing.      



STOVES AND HOUSE FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Hamplin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building,

   COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

Lumber, Lath, Shingles,



Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

....Telephone No. 279....



A. H.
HARMON,
High-Grade
Merchant
Tailoring,

Hartman Block,
Cor. Main and
Fourth Streets,
Columbus, Ohio.

Cit. Phone 2958.

 **Beggs** 

*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

Carpets, Curtains, Wall
Paper, Etc.

SIMPLEX Patent Combined Churn and Butter Worker.

"FACILE" BABCOCK TESTERS.

"B. & W." BOILERS AND ENGINES.

"B. & W." GALVANIZED STEEL CHEESE VATS.

"SPRAGUE" ADJUSTABLE AND "HELMER" CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

Mowers, are made by
Reapers and
Binders

THE WARDER, BUSHNELL
AND GLESSNER COMPANY,

SPRINGFIELD, OHIO.

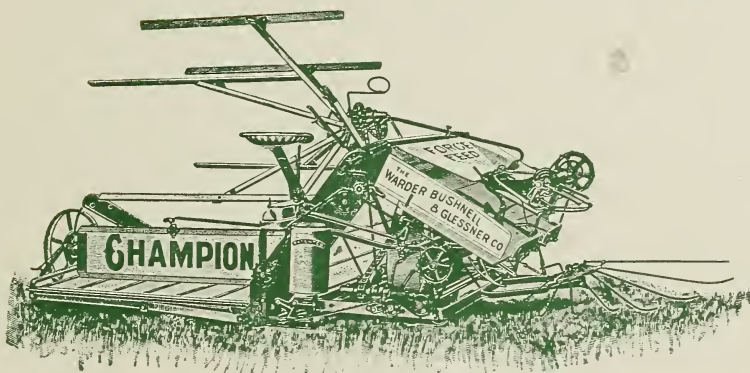
Largest and Most Complete Factory in the World engaged exclusively in making Grass and Grain Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on each style of Champion Machines, so that when Repair Parts are ordered they are sure to fit, and easily put on.



MILK TALK

is music to the farmer's ear; especially when your neighbor is relating his experience in feeding Gluten Feed, telling about the big increase in flow of milk, the improved condition of his cows, and the increased percentage of butter fat in the milk. Remember that Gluten Feed is 97.95 per cent. digestible. Free sample and full information sent if you write for them to-day. Address:

DEPARTMENT O. S.

The Glucose Sugar Refining Co.,

"The Rookery," CHICAGO, ILLINOIS.

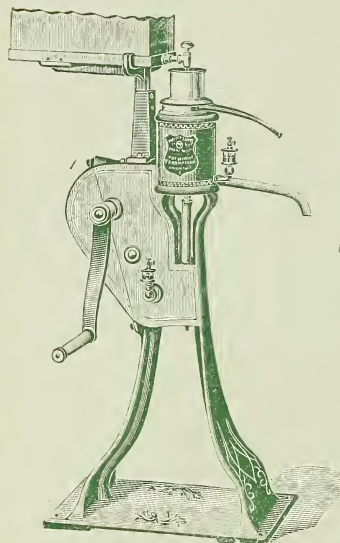
DAIRYING AUTHORITIES ON THE

Improved United States

❁

Cream Separators.

Prospective buyers of Cream Separators who desire the best should read the following letters from prominent users of the Improved U. S. Separators and note the satisfaction they give.



OHIO STATE UNIVERSITY:

Columbus, O., March 23, 1900.

The U. S. Separators at the Ohio Dairy School have been doing good work. The No. 1 Belt machine, when run according to your directions, did not leave over .04 per cent. fat in the skimmilk and took cream testing 37 per cent. fat or over. A number of times we crowded over 3,000 lbs. of milk per hour through it, which is 600 to 800 more than you rate it at. At no time was there over .085 per cent. fat in the skimmilk and it skimmed at times as close as .03 per cent.

The Dairy sizes did the same kind of close work.

It is one of the triumphs of modern dairying that such close skimming can be uniformly done. The advance that has been made in the ease of running and increased capacity over the earlier machines placed on the market is remarkable, and the last ten years of the century has witnessed all this.

JOHN W. DECKER,

Associate Prof. of Dairying.

NEW HAMPSHIRE COLLEGE OF AGRICULTURE:

Dürham, N. H., March 18, 1900.

We have used the Improved United States Cream Separators in our Dairy School and have received most excellent satisfaction from them. I have always found

them to be of unquestioned utility and know them to be standard machines of highest excellence. They are not difficult to understand and are durable and easy to keep clean and in working order.

CHARLES WILLIAM BURKETT, Professor of Agriculture

PRESIDENT OF THE AMERICAN JERSEY CATTLE CLUB.

Fifth Avenue Hotel, New York, June 22, 1900.

I am using two Improved U. S. Separators, one on my farm at East Burke, Vt., and one at Ramsey's, N. J. They are entirely satisfactory and doing good work.

E. A. DARLING, (Pres. A. J. C. C.)

If you want a separator that is satisfactory in every way; one that can be depended upon to do its work in a thorough manner; that has a large capacity according to price; that is long lived; easily operated, quickly cleaned, simple in construction with all gears entirely closed, etc., THEN BUY

The Improved U. S. Cream Separator.

AWARDED GOLD MEDAL AT PARIS INTERNATIONAL EXPOSITION OF 1900.

We furnish everything necessary for a first class Dairy or Creamery. Best goods at reasonable prices. Write us before buying elsewhere. Catalogues free.

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

EXPERIMENT STATION
U. S. DEPARTMENT OF AGRICULTURE

LIBRARY

Vol. VII.

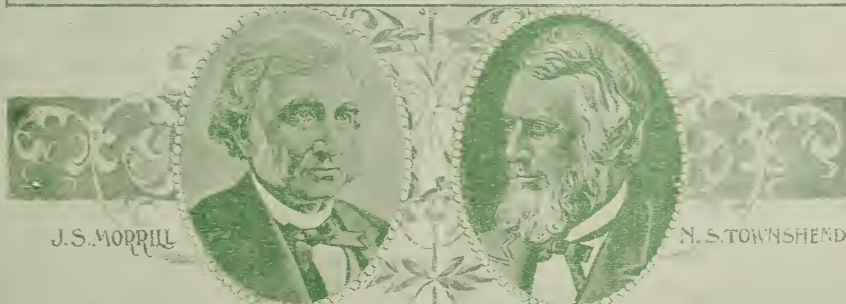
OCTOBER, 1900. RECEIVED

No. 2.

OCT 18 1900

U. S. Department of Agriculture.

THE AGRICULTURAL STUDENT



A MONTHLY MAGAZINE DEVOTED TO
AGRICULTURAL EDUCATION.

5 Cents per Copy.

50 Cents per Year.

500 Per Cent. Increase.

The above represents the increased sales of the Sharples' TUBULAR Separators for the first one-half of 1900, as compared with the entire year of 1899. _____

The TUBULAR is NEW, but it is thoroughly up-to-date and its sales in proportion to its age are five times greater than the sales of any other cream separator. Hundreds of sales this year have been made to 1899 customers who placed their orders for a second and oft times a third or fourth TUBULAR after having used one of them under varying conditions for a year.

The Sharples' Tubular Separator



Is sold on a guarantee and it must fullfill that guarantee or there is no sale. Do not take our word for it; do not take the other fellow's word against it. Give the TUBULAR a trial with the understanding that it must prove superior to other separators or there is no sale.

WRITE FOR CATALOGUE No. 79.

THE SHARPLES CO.

28, 30 and 32 S. Canal St.,
Chicago, Ill.

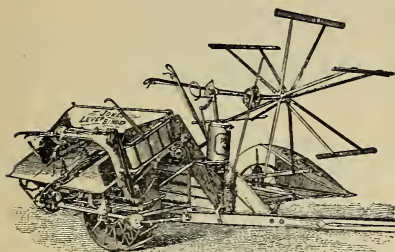
P. M. SHARPLES,
West Chester, Penna.

LIGHT . .
RUNNING

PLANO

BINDERS, MOWERS, HAY RAKES,
SICKLE GRINDERS, LEAD THE WORLD.

THE JONES LEVER BINDER



machine. No cheap castings, no weak spots.

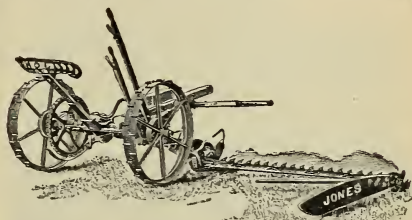
THE JONES CHAIN MOWER

Noiseless, light running, keen cutting. It possesses every improvement known to grass cutting machines and is without an equal. In thousands of meadows throughout the civilized world this simple mower, with its powerful cutting qualities, has won first place for supremacy and perfect work. With it we challenge the world and meet any competitor in a field of actual contest. It is annually sent out by tens of thousands and wherever you find one its owner will tell you "It is the most perfect machine on the farm."

No delicate toy fixtures or ball bearings to take out and clean and tinker with when time is valuable.

Everybody knows that the sprocket and chain produces far less friction than cog wheels, that they are longer lived, and the application of power is more direct. This is a scientific fact. Harvesters and binders used to have cog wheels. They are now chain drive. Why? Because of its superior advantages. Who introduced the Chain Drive Harvesters? The Plano Manufacturing Company. Who fought and denounced the chain drive principle on harvesters? Our competitors. But they were finally forced to follow in the path of the Plano and would be glad to offer you a Chain Drive Mower today if it were possible for them to purchase the right to manufacture.

There are no gears in the Jones Chain Mower to wear out, no lost motion, no vibration, no noise. The bearings are always tight. All the power is applied directly to the desired result—CUTTING GRASS.



W. B. Smith & Son, ..HOLSTEIN CATTLE..

2488 WEST BROAD ST.
Columbus, Ohio.

DEPOSITARY OF THE OHIO STATE UNIVERSITY.

The Ohio National Bank Of Columbus,
Ohio

Capital, \$400,000.

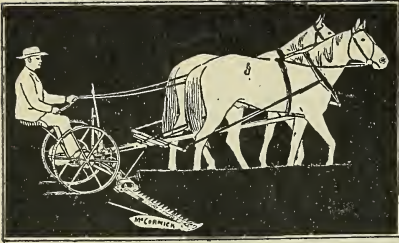
Surplus and Profits, \$90,000.

Deposits, \$2,400,000.

We do a general banking business, pay interest on time deposits, issue foreign drafts and letters of credit, buy and sell bonds, and make safe investments for our customers.

DIRECTORS—John Siebert, Geo. J. Hoster, Fred Lazarus, Conrad Born, Louis Siebert, Fred Theobald, Wm. M. Fisher, E. A. Cole, Alex. W. Krumm, Henry Richter, C. F. Myers, Emil Kiesewetter.

John Siebert, President; Emil Kiesewetter, Vice Pres't and Mgr.; C. F. Myers, Vice Pres't; L. F. Kiesewetter, Cashier; Henry Deeg, Ass't Cashier.



New 4 Mower.

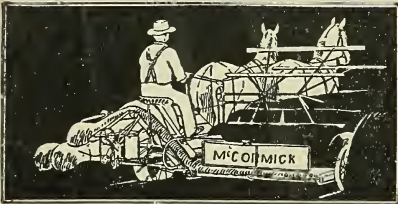
McCORMICK

BINDERS AND MOWERS

Stand in the Front Rank in all Contests

**Easy to Operate,
Convenient to Handle,
Light Draft, Most Durable,
Work Perfect.**

BUY ONE AND GET
SATISFACTION. ❁❁



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.

COLUMBUS, OHIO.

The Gold Standard :::

has never been discussed in our advertising. It never will be. Our work is to maintain the Salt Standard. The following letter from a Pennsylvania creameryman suggests that a Salt Standard is necessary:—

Worcester, Pa., Jan. 26, 1900,

Mr. H. W. Gross:

Dear Sir:—We are in the market for "Salt that's ALL Salt." We take DIAMOND CRYSTAL for our standard. It's as good as the gold standard.

Yours truly, A. CUSTER.

Farmer's Creamery Association.

Creameries that use DIAMOND CRYSTAL often express surprise that all others do not follow their example. They can't see why anyone should prefer the lower grades. We can't explain, but we can say that a majority of the creameries, and some leading salt manufacturers are free to say that

THE SALT STANDARD

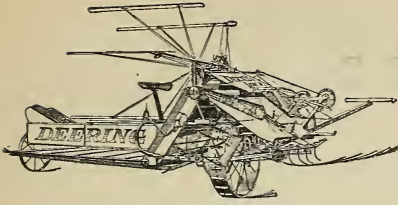
::: OF EXCELLENCE IS :::

DIAMOND CRYSTAL

Perhaps you would like to know what the leading schools and leading chemists have to say on this subject. If so, address

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

ADVERTISEMENTS.



Light Draft Deering Ideal Binder.

DEERING IDEAL BINDER

Makes Harvesting Easy.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ❁ ❁

Made in the Largest Harvest Works
in the World.

First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

— CHICAGO.



State Fair Prizes

All Prize Winners at the Iowa, Minnesota and Nebraska State Fairs, just held, used Wells, Richardson & Co.'s Improved Butter Color. Here they are:

Iowa

Elgin Cry. Co., Atlantic, 1st score 99

F. J. Mabie, Carlew, 2d score 98

Minnesota

Aage Vind, Litehfield, 1st score 98

Jno. Fridner, Stroat, 2d score, 97½

Nebraska

So. Platte Cry. Co., Teek, 1st score 98

Harding Cry. Co., Norfolk, 2d score 97

For Sale by all Dairy Supply Houses.

“The Kind that has no Mud.”

ADVERTISEMENTS.

PROF. W. J. RADER,

ART ACADEMY OF DANCING,

199½ SOUTH HIGH STREET.

Citizens Phone 1456.

Will organize classes on Monday, Tuesday, Wednesday, Friday and Saturday evenings.

For children, Saturday afternoons.



✿ ✿ RATES OF TUITION: ✿ ✿

Gentlemen, per term of ten lessons	- - - - -	\$5 00
Ladies, per term of ten lessons	- - - - -	\$3 00
Children, per term of three months	- - - - -	\$4 00

Our academy is furnished with electric fans.

Academy open from 11 a. m. to 11 p. m. daily.

✿ ✿ PUPILS CAN ENTER AT ANY TIME ✿ ✿

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noises in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., COLUMBUS, OHIO

Discount to Students and Faculty.

All Books of the O. S. U. Library
are bound by

The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service

Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs. ❀ ❀ ❀ ❀



Every State Institution

Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

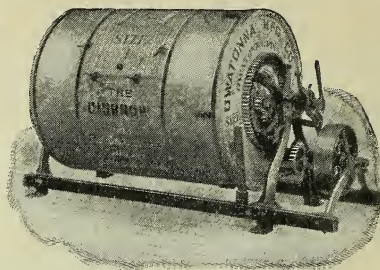
The DISBROW

Combined Churn
and Worker.

Some say it does all we claim
Others say we don't claim enough.

MR. BUTTERMAKER!

Can't you induce the manager of your
creamery to get that



DISBROW

Combined Churn and Worker he was talking about last
spring? It would make your work twice as easy this hot
weather The butter would be worth more, too, if it was
made in a Disbrow, away from the heat, flies, bad odors, etc. **Show him where it
would be money in his pocket to get a DISBROW.** We'll send you a booklet to help
you show him, if you'll drop us a postal card.

OWATONNA MFG. CO., Owatonna, Minn.

SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn. Waterloo, Iowa. Kansas City, Mo. Omaha, Neb.
General Agents Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style
White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes,
Refrigerating Machinery, Boilers and Engines, American and Lusted
Printers, Genesee Salt, Potts Pasteurizers, etc.
We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

✱ ✱ **Columbus, Ohio.**

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

America's Leading Horse Importers ..



WIN ON TWO CONTINENTS.

Six first prizes at the Iowa State Fair.

Seven first prizes at the Ohio State Fair.

Every possible first prize except one at the Paris Exposition with their Percheron and French Coach Stallions.

We buy in France and import every stallion possessing a high order of merit. If you want the best you will buy of us.

McLAUGHLIN BROTHERS,

Sixth and Wesley Aves.

COLUMBUS, OHIO.

FIVE :
BIG : : :
FLOORS

Filed with Autumn Mer-
chandise==the dependable
kinds only : : :

Nothing shoddy or full of
hidden flaws at our address.

Z. L. WHITE & CO.

102-104 NORTH HIGH ST.

LADIES' AND CHILDREN'S OUTFITTERS — MEN'S
FURNISHINGS — DRAPERIES AND
HOUSE FURNISHINGS.

ADVERTISEMENTS.

We have furnished the University and a large number of Professors and Students with

COAL



for the past three years.

MURRAY CITY COAL CO.

TELEPHONE 1435.

YARDS { Lane Avenue and H. V. R'y Crossing.
West Fifth Avenue and H. V. R'y Crossing.

Ohio Medical University.

DEPARTMENTS OF MEDICINE, DENTISTRY AND PHARMACY.

Four years graded course in Medicine, three in Dentistry, and two in Pharmacy.
Annual Sessions, seven months.

All instruction, except clinical, by the recitation plan.

Students graded on their daily recitations and term examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted, and equipped with modern apparatus. Abundant clinical facilities in both Medical and Dental Departments. **CONSIDERING SUPERIOR ADVANTAGES FEES ARE LOW.**

|| Sessions for 1900-1901
Begin Wednesday, Sept. 12. 1900.

For Catalogue and Other Information, Address
GEORGE M. WATERS, A. M., M. D., Dean, Medical Dep't.
OTTO ARNOLD, D. D. S., Dean, Dental Dep't.
GEO. H. MATSON, JR., G. PH., Dean, Pharmacy Dep't.

OHIO MEDICAL UNIVERSITY,

700-716 North Park Street, COLUMBUS, OHIO.

ADVERTISEMENTS.

SMITH'S Academies of DANCING,

DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,

Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,

Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

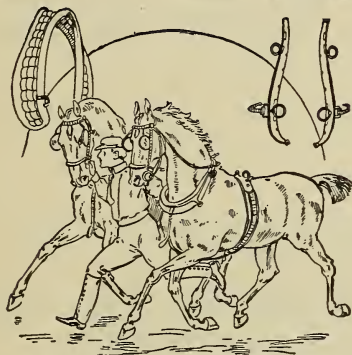
Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.



WM. BURDELL, JR.

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur

Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only. Send for

Catalogue.

81 North High Street. COLUMBUS, OHIO.

COME and use our telephone, consult our directory, and buy your postage stamps at . .

KILER'S PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.



CHR. HANSEN'S

DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strongest, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is guaranteed the strongest in the market, and in every respect superior to every other except the Danish.

Rennet Extract, Cheese Color, Rennet Tablets, and Cheese Color Tablets for Farm Cheese Making, Lactic Ferment, Marschall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

Chas. G. Beck

Palmer & Beck

Slate and Metal Roofing

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St. COLUMBUS, O.
Telephone 1862.

You Should Know That

: Star Wind Mills:

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.

Galvanized Steel and Wood Tanks.

All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

FARM SEEDS, VEGETABLE AND
FLOWER SEEDS, BULBS, &c.

High-Grade Mixed Lawn
Seeds a Specialty.

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm.

COLUMBUS, OHIO.

The Kauffman-Lattimer Co.

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty.

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition

AT BUFFALO IN 1901

Best reached via. "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.
Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.



The Acknowledged Headquarters for









CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town. Columbus, O.

Blackwood, Green & Co.

BUILDERS' HARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing.      



STOVES AND HOUSE
FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Hamplin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building.

   COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

Lumber, Lath, Shingles,



Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

....Telephone No. 279....



A. H.
HARMON,

High-Grade
Merchant
Tailoring,

Hartman Block,
Cor. Main and
Fourth Streets,
Columbus, Ohio.

Cit. Phone 2958.



Beggs



*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

**Carpets, Curtains, Wall
Paper, Etc.**

SIMPLEX

Patent Combined Churn and Butter Worker.

"FACILE" BABCOCK TESTERS.

"B. & W." BOILERS AND ENGINES.

"B. & W." GALVANIZED STEEL CHEESE VATS.

"SPRAGUE" ADJUSTABLE AND "HELMER" CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

Mowers,
Reapers and
Binders

**THE WARDER, BUSHNELL
AND GLESSNER COMPANY,**

SPRINGFIELD, OHIO.

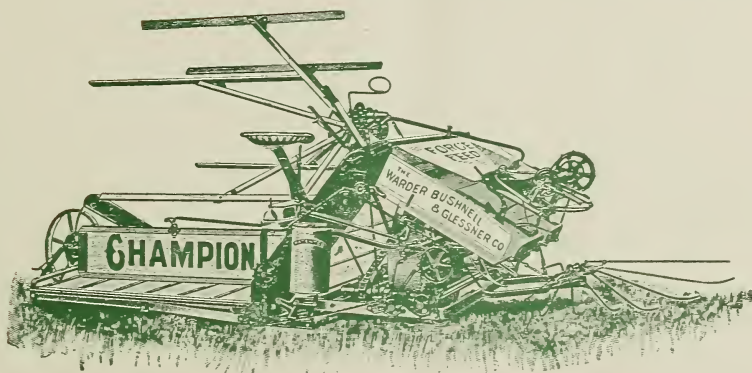
Largest and Most Complete Factory in the World engaged
exclusively in making Grass and Grain
Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and
Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on
each style of Champion Machines, so that when Repair
Parts are ordered they are sure to fit, and easily put on.



MILK TALK

is music to the farmer's ear; especially when your neighbor is relating his experience in feeding Gluten Feed, telling about the big increase in flow of milk, the improved condition of his cows, and the increased percentage of butter fat in the milk. Remember that Gluten Feed is 97.95 per cent. digestible. Free sample and full information sent if you write for them to-day. Address:

DEPARTMENT O. S.

The Glucose Sugar Refining Co.,

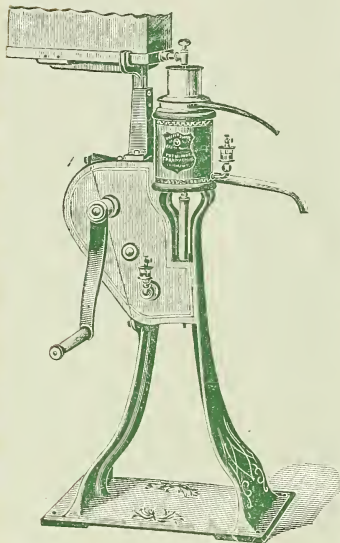
"The Rookery," CHICAGO, ILLINOIS.

DAIRYING AUTHORITIES ON THE

Improved United States

Cream Separators.

Prospective buyers of Cream Separators who desire the best should read the following letters from prominent users of the Improved U. S. Separators and note the satisfaction they give.



OHIO STATE UNIVERSITY :

Columbus, O., March 23, 1900.

The U. S. Separators at the Ohio Dairy School have been doing good work. The No. 1 Belt machine, when run according to your directions, did not leave over .04 per cent. fat in the skim milk and took cream testing 37 per cent. fat or over. A number of times we crowded over 3,000 lbs. of milk per hour through it, which is 600 to 800 more than you rate it at. At no time was there over .085 per cent. fat in the skim milk and it skimmed at times as close as .03 per cent.

The Dairy sizes did the same kind of close work.

It is one of the triumphs of modern dairying that such close skimming can be uniformly done. The advance that has been made in the ease of running and increased capacity over the earlier machines placed on the market is remarkable, and the last ten years of the century has witnessed all this.

JOHN W. DECKER,
Associate Prof. of Dairying

NEW HAMPSHIRE COLLEGE OF AGRICULTURE :

Durham, N. H., March 18, 1900.

We have used the Improved United States Cream Separators in our Dairy School and have received most excellent satisfaction from them. I have always found

them to be of unquestioned utility and know them to be standard machines of highest excellence. They are not difficult to understand and are durable and easy to keep clean and in working order.

CHARLES WILLIAM BURKETT, Professor of Agriculture.

PRESIDENT OF THE AMERICAN JERSEY CATTLE CLUB.

Fifth Avenue Hotel, New York, June 22, 1900.

I am using two Improved U. S. Separators, one on my farm at East Burke, Vt., and one at Ramsey's, N. J. They are entirely satisfactory and doing good work.

E. A. DARLING, (Pres. A. J. C. C.)

If you want a separator that is satisfactory in every way; one that can be depended upon to do its work in a thorough manner; that has a large capacity according to price; that is long lived; easily operated, quickly cleaned, simple in construction with all gears entirely closed, etc., THEN BUY

The Improved U. S. Cream Separator.

AWARDED GOLD MEDAL AT PARIS INTERNATIONAL EXPOSITION OF 1900.

We furnish everything necessary for a first class Dairy or Creamery. Best goods at reasonable prices. Write us before buying elsewhere. Catalogues free.

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

LIBRARY

RECEIVED

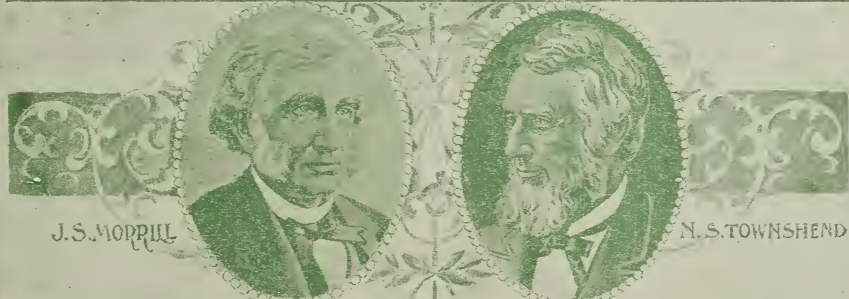
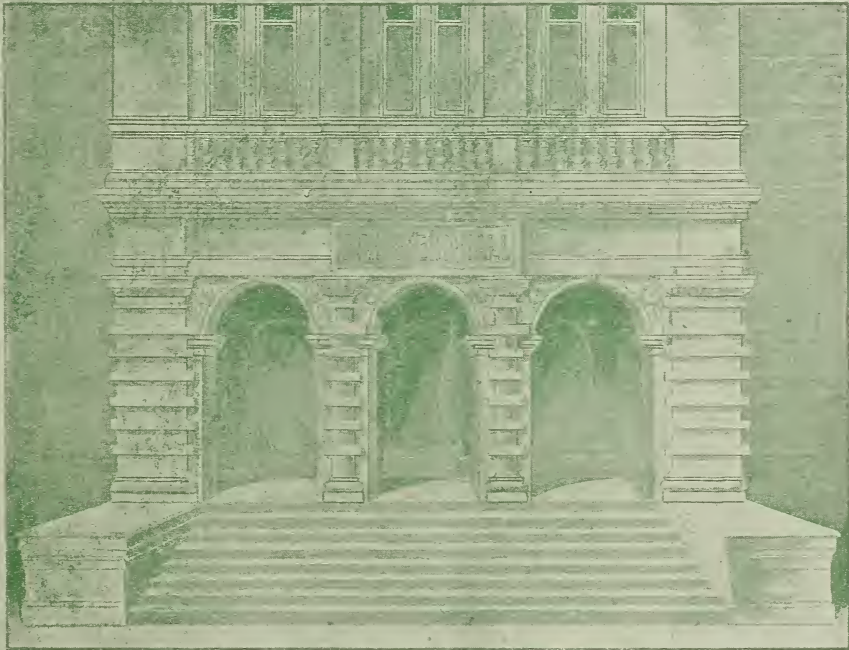
NOV 8 1900

Vol. VII.

NOVEMBER, 1900.

U. S. Department of Agriculture. No. 3.

THE AGRICULTURAL STUDENT



A MONTHLY MAGAZINE DEVOTED TO AGRICULTURAL EDUCATION.

5 Cents per Copy.

50 Cents per Year.

500 Per Cent. Increase.

The above represents the increased sales of the Sharples' TUBULAR Separators for the first one-half of 1900, as compared with the entire year of 1899. _____

The TUBULAR is NEW, but it is thoroughly up-to-date and its sales in proportion to its age are five times greater than the sales of any other cream separator. Hundreds of sales this year have been made to 1899 customers who placed their orders for a second and oft times a third or fourth TUBULAR after having used one of them under varying conditions for a year.

The Sharples' Tubular Separator



Is sold on a guarantee and it must fullfill that guarantee or there is no sale. Do not take our word for it; do not take the other fellow's word against it. Give the TUBULAR a trial with the understanding that it must prove superior to other separators or there is no sale.

WRITE FOR CATALOGUE No. 79.

THE SHARPLES CO.

28, 30 and 32 S. Canal St.,
Chicago, Ill.

P. M. SHARPLES,
West Chester, Penna.

Five Grand Prizes in 1900 to the

BAKER ART GALLERY

For Superiority in Photography; including Gold Medal from the Paris Exposition, the only one Awarded to an American Photographer.

Special Rates to Students.

STATE AND HIGH STS.

DEPOSITARY OF THE OHIO STATE UNIVERSITY.

The Ohio National Bank Of Columbus, Ohio

Capital, \$400,000.

Surplus and Profits, \$90,000.

Deposits, \$2,400,000.

We do a general banking business, pay interest on time deposits, issue foreign drafts and letters of credit, buy and sell bonds, and make safe investments for our customers.

DIRECTORS—John Siebert, Geo. J. Hoster, Fred Lazarus, Conrad Born, Louis Siebert, Fred Theobald, Wm. M. Fisher, E. A. Cole, Alex. W. Krumm, Henry Richter, C. F. Myers, Emil Kieseewetter.

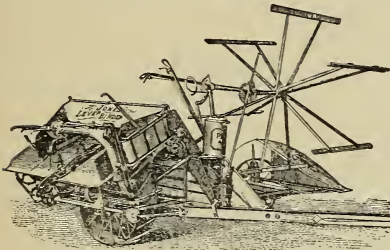
John Siebert, President; Emil Kieseewetter, Vice Pres't and Mgr.; C. F. Myers, Vice Pres't; L. F. Kieseewetter, Cashier; Henry Deeg, Ass't Cashier.

LIGHT . .
RUNNING

PLANO

BINDERS. MOWERS. HAY RAKES,
SICKLE GRINDERS, LEAD THE WORLD.

THE JONES LEVER BINDER



Is the highest attainment of the age, a marvel of simplicity and a model of symmetry, beauty and strength. The sweeping victories it has achieved in hundreds of actual field contests have made it the acknowledged favorite of the world.

For simplicity, durability, adjustability, lightness of draft and ease of management, the Jones Lever Binder has no equal. The Steel Lever displaces the train of cog wheels used on other machines, lessens the weight and simplifies the work. It has the simplest knottor in the world, the most vital part of a binder—never fails and cannot get out of order. Its powerful carrying spring adds life to the machine and makes it ride easy. Its reel with our patent friction clutch, will not break like other reels when striking the limb of a tree or obstruction in the grain. It is a modern, simplified machine, up-to-date—just what the farmer wants. Made of steel and malleable iron, it possesses the enduring qualities never before reached in a harvesting

machine. No cheap castings, no weak spots.

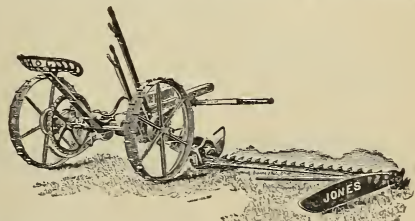
THE JONES CHAIN MOWER

Noiseless, light running, keen cutting. It possesses every improvement known to grass cutting machines and is without an equal. In thousands of meadows throughout the civilized world this simple mower, with its powerful cutting qualities, has won first place for supremacy and perfect work. With it we challenge the world and meet any competitor in a field of actual contest. It is annually sent out by tens of thousands and wherever you find one its owner will tell you "It is the most perfect machine on the farm."

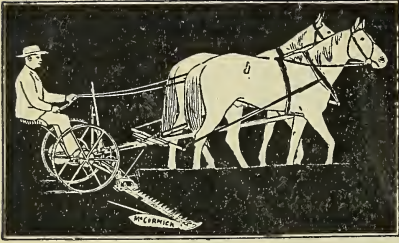
No delicate toy fixtures or ball bearings to take out and clean and tinker with when time is valuable.

Everybody knows that the sprocket and chain produces far less friction than cog wheels, that they are longer lived, and the application of power is more direct. This is a scientific fact. Harvesters and binders used to have cog wheels. They are now chain drive. Why? Because of its superior advantages. Who introduced the Chain Drive Harvesters? The Plano Manufacturing Company. Who fought and denounced the chain drive principle on harvesters? Our competitors. But they were finally forced to follow in the path of the Plano and would be glad to offer you a Chain Drive Mower today if it were possible for them to purchase the right to manufacture.

There are no gears in the Jones Chain Mower to wear out, no lost motion, no vibration, no noise. The bearings are always tight. All the power is applied directly to the desired result—CUTTING GRASS.



THE PLANO MFG. CO., Chicago, Ill



New 4 Mower.

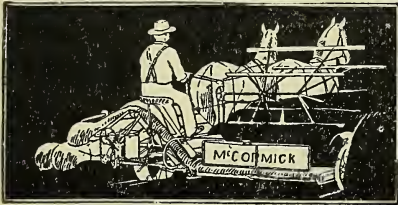
McCORMICK

BINDERS AND MOWERS

Stand in the Front Rank in all Contests

**Easy to Operate,
Convenient to Handle,
Light Draft, Most Durable,
Work Perfect.**

BUY ONE AND GET
SATISFACTION. ❀❀



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.

COLUMBUS, OHIO.

The Gold Standard :::

has never been discussed in our advertising. It never will be. Our work is to maintain the Salt Standard. The following letter from a Pennsylvania creameryman suggests that a Salt Standard is necessary:—

Worcester, Pa., Jan. 26, 1900,

Mr. H. W. Gross:

Dear Sir:—We are in the market for "Salt that's ALL Salt." We take DIAMOND CRYSTAL for our standard. It's as good as the gold standard.

Yours truly, A. CUSTER.

Farmer's Creamery Association.

Creameries that use DIAMOND CRYSTAL often express surprise that all others do not follow their example. They can't see why anyone should prefer the lower grades. We can't explain, but we can say that a majority of the creameries, and some leading salt manufacturers are free to say that

THE SALT STANDARD

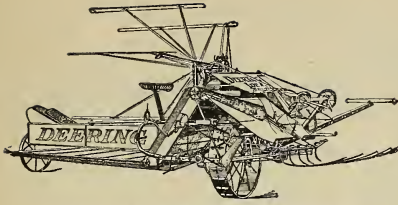
::: OF EXCELLENCE IS :::

DIAMOND CRYSTAL

Perhaps you would like to know what the leading schools and leading chemists have to say on this subject. If so, address

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

ADVERTISEMENTS.



Light Draft Deering Ideal Binder.

DEERING IDEAL BINDER

Makes Harvesting Easy.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ❁ ❁

Made in the Largest Harvest Works
in the World.

First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

— CHICAGO.



State Fair First Prize Winner,

— 1900 —

Minneasota.....	Aage Vind, Litchfield, Minn.....	Score, 98
Iowa	M. O. Wheelock, Atlantic, Ia.....	“ 99
Illinois.....	M. O. Wheelock, Atlantic, Ia.....	“ 98
S. Dakota.....	O. Distad, De Smet, S. Dak.....	“ 98½
Nebraska	South Platt Creameries, York, Neb.....	“ 98
Michigan	Freeport Creamery Co., Freeport, Mich.....	“ 97½
Wisconsin.....	F. E. McCormick, Hetzel, Wis.....	“ 97½
St. Louis.....	A. W. McColl, Creston, Ia.....	“ 98½

**They All Use Wells, Richardson & Co.'s Improved
Butter Color.**

“THE KIND THAT HAS NO MUD.”

It Helps Win Prizes.

THE LATEST AND BEST BOOKS ON FARMING.

A selected list of the best books for the farmer's library. Now is the time to order for your winter's reading. Any of the following choice books will be sent pre-paid, including one year's subscription to the *Agricultural Student*, upon receipt of the price named.

THE FERTILITY OF THE LAND. A Summary Sketch of the Relationship of Farm-Practice to the Maintaining and Increasing of the Productivity of the Soil. By I. P. Roberts, Director of the College of Agriculture, Cornell University.
Third Edition—421 pages—45 illustrations—\$1.25.

THE SPRAYING OF PLANTS. A Succinct Account of the History, Principles and Practice of the Application of Liquids and Powders to Plants for the Purpose of Destroying Insects and Fungi. By E. G. Lodeman, late Instructor in Horticulture in the Cornell University.
399 pages—92 illustrations—\$1.00.

THE PRINCIPLES OF AGRICULTURE. A Text Book for Schools and Rural Societies. Edited by L. H. Bailey, with contributions from his colleagues in the Cornell University.
Second Edition—300 pages—92 illustrations—\$1.25.

THE SOIL. Its Nature, Relations and Fundamental Principles of Management. By F. H. King, Professor of Agricultural Physics in the University of Wisconsin.
303 pages—45 illustrations—75 cts.

BUSH-FRUIT. A Horticultural Monograph of Raspberries, Blackberries, Dewberries, Currants, Gooseberries and other Shrub-like Fruits. By Fred W. Card, Professor of Horticulture in Rhode Island Agricultural College.
537 pages—113 illustrations—\$1.50.

FERTILIZERS. The Source, Character and Composition of Natural, Home-Made and Manufactured Fertilizers; and Suggestions as to their Use for Different Crops and Conditions. By Edward B. Voorhees, Director of the New Jersey Experi-

ment Station, and Professor of Agriculture in Rutgers College.
Second Edition—335 pages—\$1.00.

MILK AND ITS PRODUCTS. A treatise upon the Nature and Qualities of Dairy Milk, and the Manufacture of Butter and Cheese. By Henry H. Wing, Assistant Professor of Dairy Husbandry in the Cornell University.
280 pages—33 illustrations—\$1.00.

THE PRINCIPLES OF FRUIT-GROWING. By L. H. Bailey, Professor of Horticulture in the Cornell University.
Second Edition—514 pages—120 illustrations—\$1.25.

RURAL WEALTH AND WELFARE. Economic Principles Illustrated and applied in Farm Life. By George T. Fairchild, LL.D., Ex-President of the Agricultural College of Kansas.
381 pages—14 charts—\$1.25.

THE FARMSTEAD. By I. P. Roberts, Director of the College of Agriculture at Cornell University.
350 pages—138 illustrations—\$1.25.

THE NURSERY-BOOK. A Complete Guide to the Multiplication of Plants. By L. H. Bailey, Professor of Horticulture in the Cornell University.
Third Edition—365 pages—152 illustrations—\$1.00.

PLANT-BREEDING. Being Five Lectures upon the Amelioration of Domestic Plants. By L. H. Bailey, Professor of Horticulture in the Cornell University.
293 pages—20 illustrations—\$1.00.

THE HORTICULTURIST'S RULE-BOOK. A Compendium of Useful Information for Fruit-Growers, Truck-Gardeners, Florists and others. By L. H. Bailey, Professor of Horticulture in the Cornell University.
Fourth Edition—312 pages—75 cts.

AGRICULTURAL STUDENT PUBLISHING CO.

Ohio State University, COLUMBUS, OHIO.

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noises in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., COLUMBUS, OHIO

Discount to Students and Faculty.

All Books of the O. S. U. Library
are bound by

The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs.



Every State Institution Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

JUST A MINUTE!

Did you ever use a Combined Churn and Worker? What kind? Were you satisfied with it? Did you ever use a

DISBROW

Combined Churn and Worker? If you have never used a **DISBROW**, you can't appreciate the advantages of a combined churn. Strong statement, isn't it? But it's true. Do you want proof? Ask other makers of combined churns why, if the machines they make NOW are better than the Disbrow, did they spend three years time and thousands of dollars trying to secure the Disbrow patents through the courts?

OWATONNA MFG. CO., Owatonna, Minn.

SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn.

Waterloo, Iowa.

Kansas City, Mo.

Omaha, Neb.

OUR SPECIALTIES.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimite Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizers, Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

* * Columbus, Ohio.

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

America's Leading Horse Importers ..



WIN ON TWO CONTINENTS.

Six first prizes at the Iowa State Fair.

Seven first prizes at the Ohio State Fair.

Every possible first prize except one at the Paris Exposition with their Percheron and French Coach Stallions.

We buy in France and import every stallion possessing a high order of merit. If you want the best you will buy of us.

McLAUGHLIN BROTHERS,

Sixth and Wesley Aves.

COLUMBUS, OHIO.

W. B. Smith & Son, **..HOLSTEIN CATTLE..**

2488 WEST BROAD ST.
Columbus, Ohio.

Chicago, October 29, 1900.

Farms loans at 4, 4½ and 5 per cent. on ten years' time, with privilege of paying the whole, or any part thereof, on any interest date.

STEPHEN DEMMON & CO.,


Title and Trust Building,

Chicago, Ill.

ADVERTISEMENTS.

We have furnished the University and a large number of Professors and Students with

COAL



for the past three years.

MURRAY CITY COAL CO.

TELEPHONE 1435.

YARDS { Lane Avenue and H. V. R'y Crossing.
West Fifth Avenue and H. V. R'y Crossing.

Ohio Medical University.

DEPARTMENTS OF MEDICINE, DENTISTRY AND PHARMACY.

Four years graded course in Medicine, three in Dentistry, and two in Pharmacy.
Annual Sessions, seven months.

All instruction, except clinical, by the recitation plan.

Students graded on their daily recitations and term examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted, and equipped with modern apparatus. Abundant clinical facilities in both Medical and Dental Departments. **CONSIDERING SUPERIOR ADVANTAGES FEES ARE LOW.**

|| Sessions for 1900-1901
|| Begin Wednesday, Sept. 12. 1900.

For Catalogue and Other Information, Address
GEORGE M. WATERS, A. M., M. D., Dean, Medical Dep't.
OTTO ARNOLD, D. D. S., Dean, Dental Dep't.
GEO. H. MATSON, JR., G. PH., Dean, Pharmacy Dep't.

OHIO MEDICAL UNIVERSITY,

700-716 North Park Street, COLUMBUS, OHIO.

ADVERTISEMENTS.

SMITH'S Academies of DANCING,

DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,

Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,

Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

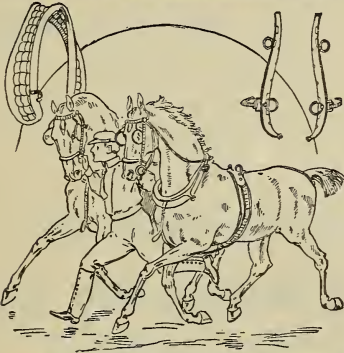
Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.



WM. BURDELL, JR.

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur

Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only. Send for

Catalogue.

81 North High Street.

COLUMBUS, OHIO.

COME and use our telephone, consult our directory, and buy your postage stamps at . .

KILER'S PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.

CHR. HANSEN'S



DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strongest, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is guaranteed the strongest in the market, and in every respect superior to every other except the Danish.

Rennet Extract, Cheese Color, Rennet Tablets, and Cheese Color Tablets for Farm Cheese Making, Lactic Ferment, Marschall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

Chas. G. Beck

Palmer & Beck

Slate and Metal Roofing

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St.

Telephone 1862.

COLUMBUS, O.

You Should Know That

-:Star Wind Mills:-

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.

Galvanized Steel and Wood Tanks.

All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

FARM SEEDS, VEGETABLE AND
FLOWER SEEDS, BULBS, &c.

High-Grade Mixed Lawn
Seeds a Specialty.

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm

COLUMBUS, OHIO.

The Kauffman-Lattimer Co.

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty.

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition

AT BUFFALO IN 1901

Best reached via. "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.
Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.



The Acknowledged Headquarters for









CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town. Columbus, O.

Blackwood, Green & Co.

BUILDERS' HARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing.      



STOVES AND HOUSE
FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Hamplin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building.

   COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

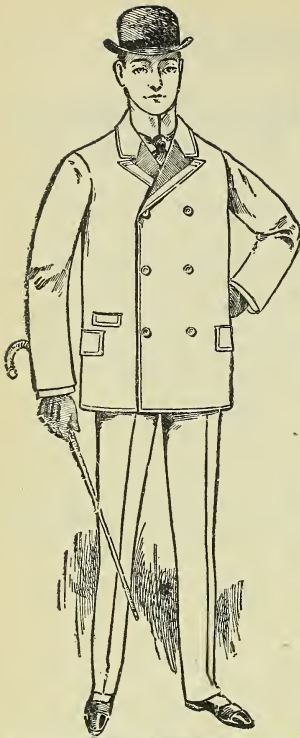
Lumber, Lath, Shingles,



Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

...Telephone No. 279....



A. H.
HARMON,
High-Grade
Merchant
Tailoring,

Hartman Block,
Cor. Main and
Fourth Streets,
Columbus, Ohio.

Cit. Phone 2958.



Beggs



*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

Carpets, Curtains, Wall
Paper, Etc.

SIMPLEX Patent Combined Churn and Butter Worker.

“FACILE” BABCOCK TESTERS.

“B. & W.” BOILERS AND ENGINES.

“B. & W.” GALVANIZED STEEL CHEESE VATS.

“SPRAGUE” ADJUSTABLE AND “HELMER” CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

Mowers,
Reapers and
Binders

THE WARDER, BUSHNELL
AND GLESSNER COMPANY,
SPRINGFIELD, OHIO.

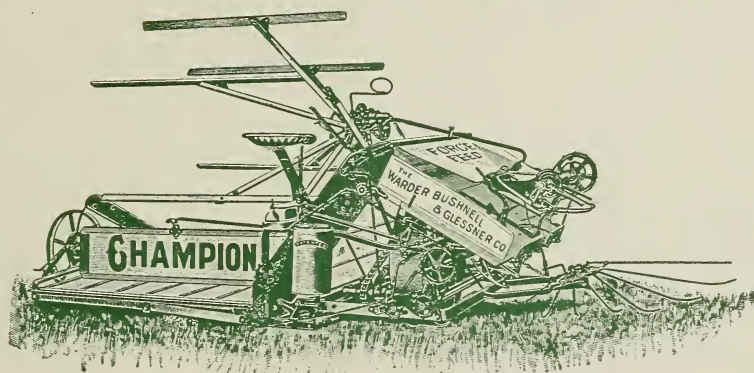
Largest and Most Complete Factory in the World engaged
exclusively in making Grass and Grain
Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and
Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on
each style of Champion Machines, so that when Repair
Parts are ordered they are sure to fit, and easily put on.



MILK TALK

is music to the farmer's ear; especially when your neighbor is relating his experience in feeding Gluten Feed, telling about the big increase in flow of milk, the improved condition of his cows, and the increased percentage of butter fat in the milk. Remember that Gluten Feed is 97.95 per cent. digestible. Free sample and full information sent if you write for them to-day. Address:

DEPARTMENT O. S.

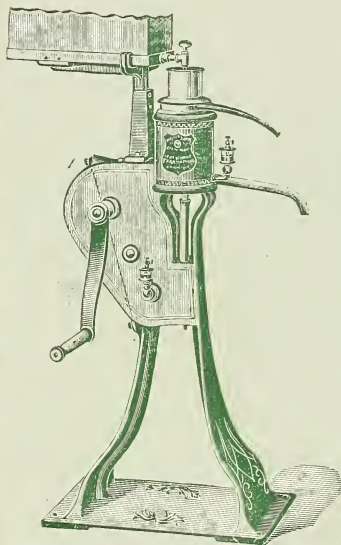
The Glucose Sugar Refining Co.,
"The Rookery," CHICAGO, ILLINOIS.

DAIRYING AUTHORITIES ON THE

Improved United States

Cream Separators.

Prospective buyers of Cream Separators who desire the best should read the following letters from prominent users of the Improved U. S. Separators and note the satisfaction they give.



OHIO STATE UNIVERSITY :

Columbus, O., March 23, 1900.

The U. S. Separators at the Ohio Dairy School have been doing good work. The No. 1 Belt machine, when run according to your directions, did not leave over .04 per cent. fat in the skimmilk and took cream testing 37 per cent. fat or over. A number of times we crowded over 3,000 lbs. of milk per hour through it, which is 600 to 800 more than you rate it at. At no time was there over .085 per cent. fat in the skimmilk and it skimmed at times as close as .03 per cent.

The Dairy sizes did the same kind of close work.

It is one of the triumphs of modern dairying that such close skimming can be uniformly done. The advance that has been made in the ease of running and increased capacity over the earlier machines placed on the market is remarkable, and the last ten years of the century has witnessed all this.

JOHN W. DECKER.

Associate Prof. of Dairying.

NEW HAMPSHIRE COLLEGE OF AGRICULTURE :

Durham, N. H., March 18, 1900.

We have used the Improved United States Cream Separators in our Dairy School and have received most excellent satisfaction from them. I have always found

them to be of unquestioned utility and know them to be standard machines of highest excellence. They are not difficult to understand and are durable and easy to keep clean and in working order.

CHARLES WILLIAM BURKETT, Professor of Agriculture

PRESIDENT OF THE AMERICAN JERSEY CATTLE CLUB.

Fifth Avenue Hotel, New York, June 22, 1900.

I am using two Improved U. S. Separators, one on my farm at East Burke, Vt., and one at Ramsey's, N. J. They are entirely satisfactory and doing good work.

E. A. DARLING, (Pres. A. J. C. C.)

If you want a separator that is satisfactory in every way; one that can be depended upon to do its work in a thorough manner; that has a large capacity according to price; that is long lived; easily operated, quickly cleaned, simple in construction with all gears entirely closed, etc., THEN BUY

The Improved U. S. Cream Separator.

AWARDED GOLD MEDAL AT PARIS INTERNATIONAL EXPOSITION OF 1900.

We furnish everything necessary for a first class Dairy or Creamery. Best goods at reasonable prices. Write us before buying elsewhere. Catalogues free.

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

Vol. VII.

DECEMBER, 1900

No. 4.

LIBRARY.

RECEIVED

☆ DEC 8 1900 ☆

U. S. Department of Agriculture.

THE AGRICULTURAL STUDENT



J.S. MORRILL

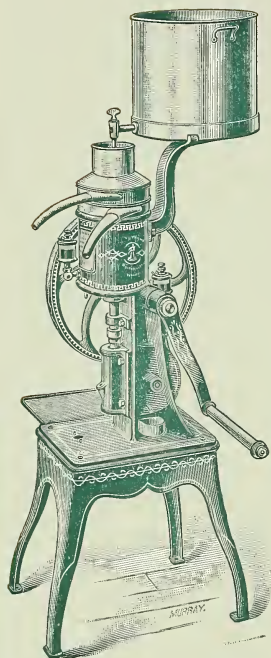
N.S. TOWNSHEND

A MONTHLY MAGAZINE DEVOTED TO
AGRICULTURAL EDUCATION.

5 Cents per Copy.

50 Cents per Year.

"ALPHA-DE LAVAL" CREAM SEPARATORS.



The De Laval Cream Separators were first and have always been kept best. They have always led in improvements, which imitating machines must await the expiration of patents to use. The 20TH CENTURY improvements give them still greater capacity and efficiency. They are immeasurably superior to any other system or method that can be employed in the separation of cream—saving \$5.00 to \$10.00 per cow per year over any setting system and \$3.00 to \$5.00 over any other centrifugal method.

All sizes, styles and prices **\$50. to \$800.00**

SEND FOR NEW "20th CENTURY" CATALOGUE.

THE DE LAVAL SEPARATOR CO.

Randolph & Canal Sts.,
CHICAGO.

103 & 105 Mission St.,
SAN FRANCISCO.

General Offices :

**74 CORTLANDT ST.,
NEW YORK.**

1102 Arch Street,
PHILADELPHIA.

327 Commissioners St.,
MONTREAL.

Five Grand Prizes in 1900 to the

BAKER ART GALLERY

For Superiority in Photography; including Gold Medal from the Paris Exposition, the only one Awarded to an American Photographer.

STATE AND HIGH STS.

Special Rates to Students.

DEPOSITARY OF THE OHIO STATE UNIVERSITY.

The Ohio National Bank Of Columbus, Ohio

Capital, \$400,000.

Surplus and Profits, \$90,000.

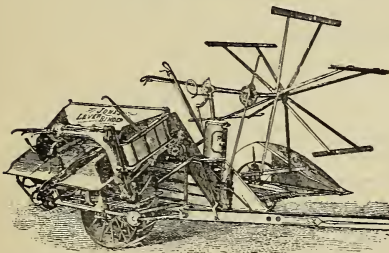
Deposits, \$2,400,000.

We do a general banking business, pay interest on time deposits, issue foreign drafts and letters of credit, buy and sell bonds, and make safe investments for our customers.

DIRECTORS—John Siebert, Geo. J. Hoster, Fred Lazarus, Conrad Born, Louis Siebert, Fred Theobald, Wm. M. Fisher, E. A. Cole, Alex. W. Krumm, Henry Richter, C. F. Myers, Emil Kiesewetter.

John Siebert, President; Emil Kiesewetter, Vice Pres't and Mgr.; C. F. Myers, Vice Pres't; L. F. Kiesewetter, Cashier; Henry Deeg, Ass't Cashier.

LIGHT . . . **PLANO** BINDERS. MOWERS. HAY RAKES, RUNNING SICKLE GRINDERS, LEAD THE WORLD.
THE JONES LEVER BINDER



Is the **highest** attainment of the age, a marvel of simplicity and a model of symmetry, beauty and strength. The sweeping victories it has achieved in hundreds of actual field contests have made it the acknowledged favorite of the world.

For simplicity, durability, adjustability, lightness of draft and ease of management, the Jones Lever Binder has no equal. The Steel Lever displaces the train of cog wheels used on other machines, lessens the weight and simplifies the work. It has the simplest knottier in the world, the most vital part of a binder—never fails and cannot get out of order. Its powerful carrying spring adds life to the machine and makes it ride easy. Its reel with our patent friction clutch, will not break like other reels when striking the limb of a tree or obstruction in the grain. It is a modern, simplified machine, up-to-date—just what the farmer wants. Made of steel and malleable iron, it possesses the enduring qualities never before reached in a harvesting

machine. No cheap castings, no weak spots.

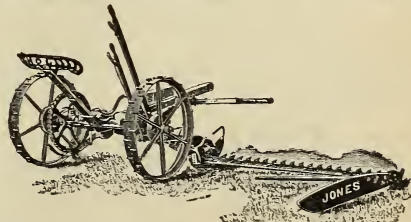
THE JONES CHAIN MOWER

Noiseless, light running, keen cutting. It possesses every improvement known to grass cutting machines and is without an equal. In thousands of meadows throughout the civilized world this simple mower, with its powerful cutting qualities, has won first place for supremacy and perfect work. With it we challenge the world and meet any competitor in a field of actual contest. It is annually sent out by tens of thousands and wherever you find one its owner will tell you "It is the most perfect machine on the farm."

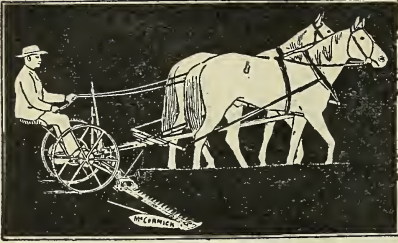
No delicate toy fixtures or ball bearings to take out and clean and tinker with when time is valuable.

Everybody knows that the sprocket and chain produces far less friction than cog wheels, that they are longer lived, and the application of power is more direct. This is a scientific fact. Harvesters and binders used to have cog wheels. They are now chain drive. Why? Because of its superior advantages. Who introduced the Chain Drive Harvesters? The Plano Manufacturing Company. Who fought and denounced the chain drive principle on harvesters? Our competitors. But they were finally forced to follow in the path of the Plano and would be glad to offer you a Chain Drive Mower today if it were possible for them to purchase the right to manufacture.

There are no gears in the Jones Chain Mower to wear out, no lost motion, no vibration, no noise. The bearings are always tight. All the power is applied directly to the desired result—CUTTING GRASS.



THE PLANO MFG. CO., Chicago, Ill



New 4 Mower.

McCORMICK

BINDERS AND MOWERS

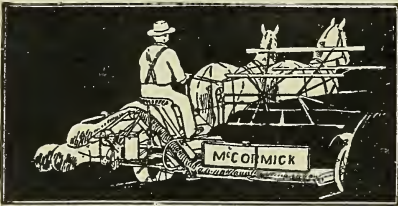
Stand in the Front Rank in all Contests

Easy to Operate,

Convenient to Handle,

Light Draft, Most Durable,
Work Perfect.

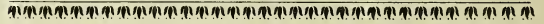
BUY ONE AND GET
SATISFACTION. ❀❀



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.



COLUMBUS, OHIO.

The Gold Standard :::

has never been discussed in our advertising. It never will be. Our work is to maintain the Salt Standard. The following letter from a Pennsylvania creameryman suggests that a Salt Standard is necessary:—

Worcester, Pa., Jan. 26, 1900,

Mr. H. W. Gross:

Dear Sir:—We are in the market for "Salt that's ALL Salt." We take DIAMOND CRYSTAL for our standard. It's as good as the gold standard.

Yours truly, A. CUSTER.

Farmer's Creamery Association.

Creameries that use DIAMOND CRYSTAL often express surprise that all others do not follow their example. They can't see why anyone should prefer the lower grades. We can't explain, but we can say that a majority of the creameries, and some leading salt manufacturers are free to say that

THE SALT STANDARD

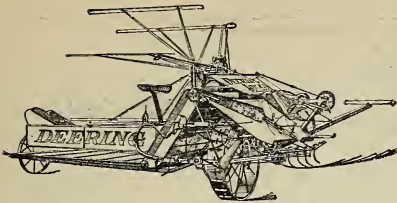
::: OF EXCELLENCE IS :::

DIAMOND CRYSTAL

Perhaps you would like to know what the leading schools and leading chemists have to say on this subject. If so, address

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

ADVERTISEMENTS.



Light Draft Deering Ideal Binder.

DEERING IDEAL BINDER

Makes Harvesting Easy.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ❀ ❀

**Made in the Largest Harvest Works
in the World.**

First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

CHICAGO.



State Fair First Prize Winner,

1900

Minneasona.....	Aage Vind, Litchfield, Minn.	Score, 98
Iowa	M. O. Wheelock, Atlantic, Ia.....	" 99
Illinois.....	M. O. Wheelock, Atlantic, Ia.....	" 98
S. Dakota.....	O. Distad, De Smet, S. Dak.....	" 98½
Nebraska	South Platt Creameries, York, Neb.....	" 98
Michigan	Freeport Creamery Co., Freeport, Mich.....	" 79½
Wisconsin.....	F. E. McCormick, Hetzel, Wis.....	" 97½
St. Louis.....	A. W. McColl, Creston, Ia.....	" 98½

**They All Use Wells, Richardson & Co.'s Improved
Butter Color.**

"THE KIND THAT HAS NO MUD."

It Helps Win Prizes.

THE LATEST AND BEST BOOKS ON FARMING.

A selected list of the best books for the farmer's library. Now is the time to order for your winter's reading. Any of the following choice books will be sent pre-paid, including one year's subscription to the *Agricultural Student*, upon receipt of the price named.

THE FERTILITY OF THE LAND. A Summary Sketch of the Relationship of Farm-Practice to the Maintaining and Increasing of the Productivity of the Soil. By I. P. Roberts, Director of the College of Agriculture, Cornell University.
Third Edition—421 pages—45 illustrations—\$1.25.

THE SPRAYING OF PLANTS. A Succinct Account of the History, Principles and Practice of the Application of Liquids and Powders to Plants for the Purpose of Destroying Insects and Fungi, By E. G. Lodeman, late Instructor in Horticulture in the Cornell University.
399 pages—92 illustrations—\$1.00.

THE PRINCIPLES OF AGRICULTURE. A Text Book for Schools and Rural Societies. Edited by L. H. Bailey, with contributions from his colleagues in the Cornell University.
Second Edition—300 pages—92 illustrations—\$1.25.

THE SOIL. Its Nature, Relations and Fundamental Principles of Management. By F. H. King, Professor of Agricultural Physics in the University of Wisconsin.
303 pages—45 illustrations—75 cts.

BUSH-FRUIT. A Horticultural Monograph of Raspberries, Blackberries, Dewberries, Currants, Gooseberries and other Shrub-like Fruits. By Fred W. Card, Professor of Horticulture in Rhode Island Agricultural College.
537 pages—113 illustrations—\$1.50.

FERTILIZERS. The Source, Character and Composition of Natural, Home-Made and Manufactured Fertilizers; and Suggestions as to their Use for Different Crops and Conditions. By Edward B. Voorhees, Director of the New Jersey Experi-

ment Station, and Professor of Agriculture in Rutgers College.
Second Edition—335 pages—\$1.00.

MILK AND ITS PRODUCTS. A treatise upon the Nature and Qualities of Dairy Milk, and the Manufacture of Butter and Cheese. By Henry H. Wing, Assistant Professor of Dairy Husbandry in the Cornell University.
280 pages—33 illustrations—\$1.00.

THE PRINCIPLES OF FRUIT-GROWING. By L. H. Bailey, Professor of Horticulture in the Cornell University.
Second Edition—514 pages—120 illustrations—\$1.25.

RURAL WEALTH AND WELFARE. Economic Principles Illustrated and applied in Farm Life. By George T. Fairchild, LL.D., Ex-President of the Agricultural College of Kansas.
381 pages—14 charts—\$1.25.

THE FARMSTEAD. By I. P. Roberts, Director of the College of Agriculture at Cornell University.
350 pages—138 illustrations—\$1.25.

THE NURSERY-BOOK. A Complete Guide to the Multiplication of Plants. By L. H. Bailey, Professor of Horticulture in the Cornell University.
Third Edition—365 pages—152 illustrations—\$1.00.

PLANT-BREEDING. Being Five Lectures upon the Amelioration of Domestic Plants. By L. H. Bailey, Professor of Horticulture in the Cornell University.
293 pages—20 illustrations—\$1.00.

THE HORTICULTURIST'S RULE-BOOK. A Compendium of Useful Information for Fruit-Growers, Truck-Gardeners, Florists and others. By L. H. Bailey, Professor of Horticulture in the Cornell University.
Fourth Edition—312 pages—75 cts.

AGRICULTURAL STUDENT PUBLISHING CO.

Ohio State University, COLUMBUS, OHIO.

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noises in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., COLUMBUS, OHIO

Discount to Students and Faculty.

All Books of the O. S. U. Library
are bound by

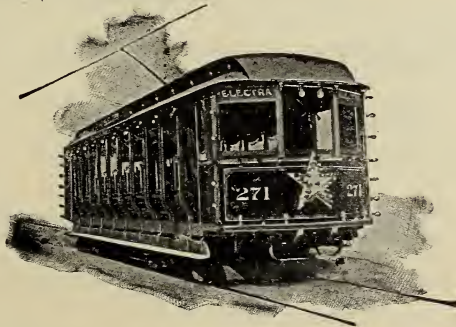
The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service

Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs.



Every State Institution

Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

JUST A MINUTE!

Did you ever use a Combined Churn and Worker? What kind? Were you satisfied with it? Did you ever use a

DISBROW

Combined Churn and Worker? If you have never used a **DISBROW**, you can't appreciate the advantages of a combined churn. Strong statement, isn't it? But it's true. Do you want proof? Ask other makers of combined churns why, if the machines they make NOW are better than the Disbrow, did they spend three years time and thousands of dollars trying to secure the Disbrow patents through the courts?

OWATONNA MFG. CO., Owatonna, Minn.
SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn.

Waterloo, Iowa.

Kansas City, Mo.

Omaha, Neb.

OUR SPECIALTIES.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Eigin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizers, Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

* * Columbus, Ohio.

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

America's Leading Horse Importers . .



WIN ON TWO CONTINENTS.

Six first prizes at the Iowa State Fair.

Seven first prizes at the Ohio State Fair.

Every possible first prize except one at the Paris Exposition with their Percheron and French Coach Stallions.

We buy in France and import every stallion possessing a high order of merit. If you want the best you will buy of us.

McLAUGHLIN BROTHERS,

Sixth and Wesley Aves.

COLUMBUS, OHIO.

W. B. Smith & Son, **..HOLSTEIN CATTLE..**

2488 WEST BROAD ST.
Columbus, Ohio.

Chicago, October 29, 1900.

Farms loans at 4, 4½ and 5 per cent. on ten years' time, with privilege of paying the whole, or any part thereof, on any interest date.

STEPHEN DEMMON & CO.,

Title and Trust Building,

Chicago, Ill.

ADVERTISEMENTS.

We have furnished the University and a large number of Professors and Students with

COAL



for the past three years.

MURRAY CITY COAL CO.

TELEPHONE 1435.

YARDS { Lane Avenue and H. V. R'y Crossing.
West Fifth Avenue and H. V. R'y Crossing.

Ohio Medical University.

DEPARTMENTS OF MEDICINE, DENTISTRY AND PHARMACY.

Four years graded course in Medicine, three in Dentistry, and two in Pharmacy.
Annual Sessions, seven months.

All instruction, except clinical, by the recitation plan.

Students graded on their daily recitations and term examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted, and equipped with modern apparatus. Abundant clinical facilities in both Medical and Dental Departments. **CONSIDERING SUPERIOR ADVANTAGES FEES ARE LOW.**

|| Sessions for 1900=1901
|| Begin Wednesday, Sept. 12. 1900.

For Catalogue and Other Information, Address
GEORGE M. WATERS, A. M., M. D., Dean, Medical Dep't.

OTTO ARNOLD, D. D. S., Dean, Dental Dep't.

GEO. H. MATSON, JR., G. PH., Dean, Pharmacy Dep't.

OHIO MEDICAL UNIVERSITY,

700-716 North Park Street, COLUMBUS, OHIO.

ADVERTISEMENTS.

SMITH'S Academies of DANCING, DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,

Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,

Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

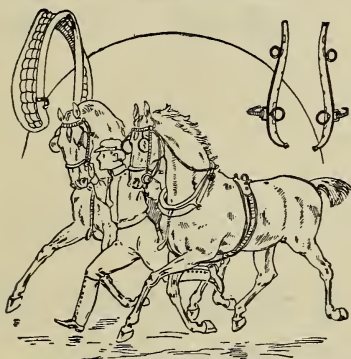
Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.



WM. BURDELL, JR.

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur

Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only. Send for

Catalogue.

81 North High Street. COLUMBUS, OHIO.

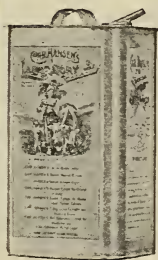
COME and use our telephone, consult our directory, and buy your postage stamps at . .

KILER'S PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.

CHR. HANSEN'S



DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strongest, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is guaranteed the strongest in the market, and in every respect superior to every other except the Danish.

Rennet Extract, Cheese Color, Rennet Tablets, and Cheese Color Tablets for Farm Cheese Making, Lactic Ferment, Marschall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

Chas. G. Beck

Palmer & Beck

Slate and Metal Roofing

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St.

Telephone 1862.

COLUMBUS, O.

You Should Know That

:Star Wind Mills:-

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.

Galvanized Steel and Wood Tanks.

All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

FARM SEEDS, VEGETABLE AND
FLOWER SEEDS, BULBS, &c.

High-Grade Mixed Lawn
Seeds a Specialty.

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm

COLUMBUS, OHIO.

The Kauffman-Lattimer Co.

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty.

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition

AT BUFFALO IN 1901

Best reached via. "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.

Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.



The Acknowledged Headquarters for









CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town. Columbus, O.

Blackwood, Green & Co.

BUILDERS' HARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing.      



STOVES AND HOUSE FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Hamplin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building,

   COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

Lumber, Lath, Shingles,



Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

....Telephone No. 279....



A. H.
HARMON,

High-Grade
Merchant
Tailoring,

Hartman Block,
Cor. Main and
Fourth Streets,
Columbus, Ohio.

Cit. Phone 2958.



Beggs



*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

**Carpets, Curtains, Wall
Paper, Etc.**

SIMPLEX

Patent Combined Churn and Butter Worker.

"FACILE" BABCOCK TESTERS.

"B. & W." BOILERS AND ENGINES.

"B. & W." GALVANIZED STEEL CHEESE VATS.

"SPRAGUE" ADJUSTABLE AND "HELMER" CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

**The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.**

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

Mowers,
Reapers and
Binders

are made by

**THE WARDER, BUSHNELL
AND GLESSNER COMPANY,**

SPRINGFIELD, OHIO.

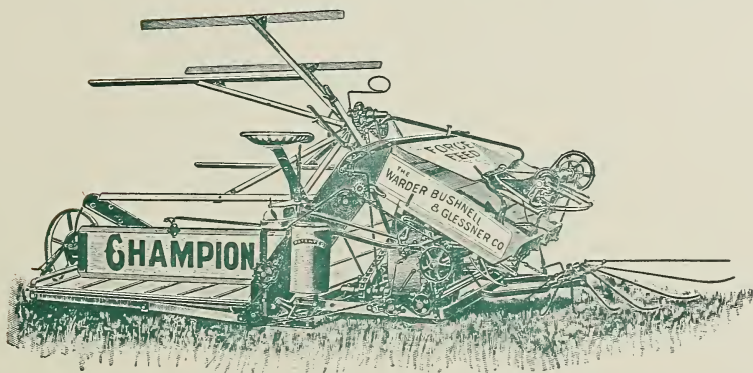
Largest and Most Complete Factory in the World engaged
exclusively in making Grass and Grain
Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and
Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on
each style of Champion Machines, so that when Repair
Parts are ordered they are sure to fit, and easily put on.



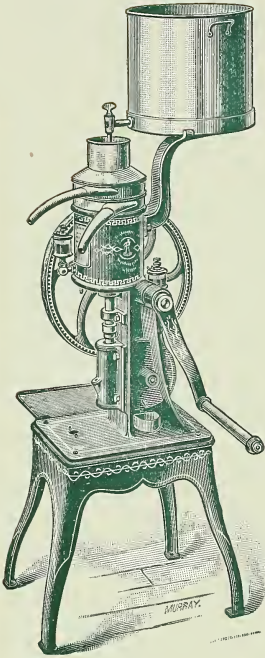
MORE MILK.

Gluten Feed will produce at least one quart more milk per day per cow. A grain ration made up of ground oats, corn, bran, middlings and corn meal can be substituted with one-half the quantity of Gluten Feed, and the result will be a saving in the actual cost of the grain ration. In addition to this saving, there is also an increase in the flow of milk, improvement in the condition of the cattle, which insures an improvement in the quality of the milk. What more can we say in behalf of Gluten Feed? Those who have fed it tell us it is the cheapest and best milk-producing feed on the market. Try it and convince yourself that our statements are correct.

DEPARTMENT O. S.

The Glucose Sugar Refining Co.,
CHICAGO, ILLINOIS.

"ALPHA-DE LAVAL" CREAM SEPARATORS.



The De Laval Cream Separators were first and have always been kept best. They have always led in improvements, which imitating machines must await the expiration of patents to use. The 20TH CENTURY improvements give them still greater capacity and efficiency. They are immeasurably superior to any other system or method that can be employed in the separation of cream—saving \$5.00 to \$10.00 per cow per year over any setting system and \$3.00 to \$5.00 over any other centrifugal method.

All sizes, styles and prices \$50. to \$800.00

SEND FOR NEW "20th CENTURY" CATALOGUE.

THE DE LAVAL SEPARATOR CO.

**Randolph & Canal Sts.,
CHICAGO.**

**103 & 105 Mission St.,
SAN FRANCISCO.**

General Offices :

**74 CORTLANDT ST.,
NEW YORK.**

**1102 Arch Street,
PHILADELPHIA.**

**327 Commissioners St.,
MONTREAL.**

ADVERTISEMENTS.

Five Grand Prizes in 1900 to the

BAKER ART GALLERY

For Superiority in Photography; including Gold Medal from the Paris Exposition, the only one Awarded to an American Photographer.

Special Rates to Students.

STATE AND HIGH STS.

DEPOSITARY OF THE OHIO STATE UNIVERSITY.

The Ohio National Bank

Of Columbus, Ohio

Capital, \$400,000.

Surplus and Profits, \$90,000.

Deposits, \$2,400,000.

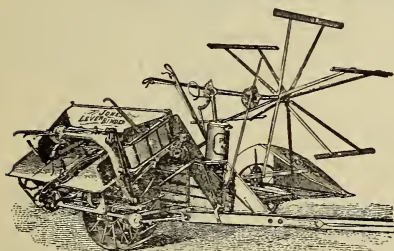
We do a general banking business, pay interest on time deposits, issue foreign drafts and letters of credit, buy and sell bonds, and make safe investments for our customers.

DIRECTORS—John Siebert, Geo. J. Hoster, Fred Lazarus, Conrad Born, Louis Siebert, Fred Theobald, Wm. M. Fisher, E. A. Cole, Alex. W. Krumm, Henry Richter, C. F. Myers, Emil Kiesewetter.

John Siebert, President; Emil Kiesewetter, Vice Pres't and Mgr.; C. F. Myers, Vice Pres't; L. F. Kiesewetter, Cashier; Henry Deeg, Ass't Cashier.

LIGHT . . . RUNNING **PLANO** BINDERS, MOWERS, HAY RAKES, SICKLE GRINDERS, LEAD THE WORLD.

THE JONES LEVER BINDER



Is the highest attainment of the age, a marvel of simplicity and a model of symmetry, beauty and strength. The sweeping victories it has achieved in hundreds of actual field contests have made it the acknowledged favorite of the world.

For simplicity, durability, adjustability, lightness of draft and ease of management, the Jones Lever Binder has no equal. The Steel Lever displaces the train of cog wheels used on other machines, lessens the weight and simplifies the work. It has the simplest knottor in the world, the most vital part of a binder—never fails and cannot get out of order. Its powerful carrying spring adds life to the machine and makes it ride easy. Its reel with our patent friction clutch, will not break like other reels when striking the limb of a tree or obstruction in the grain. It is a modern, simplified machine, up-to-date—just what the farmer wants. Made of steel and malleable iron, it possesses the enduring qualities never before reached in a harvesting

machine. No cheap castings, no weak spots.

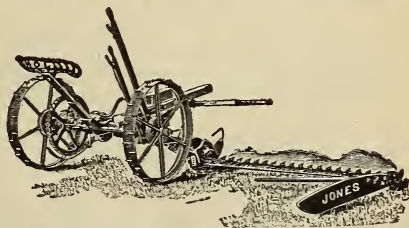
THE JONES CHAIN MOWER

Noiseless, light running, keen cutting. It possesses every improvement known to grass cutting machines and is without an equal. In thousands of meadows throughout the civilized world this simple mower, with its powerful cutting qualities, has won first place for supremacy and perfect work. With it we challenge the world and meet any competitor in a field of actual contest. It is annually sent out by tens of thousands and wherever you find one its owner will tell you "It is the most perfect machine on the farm."

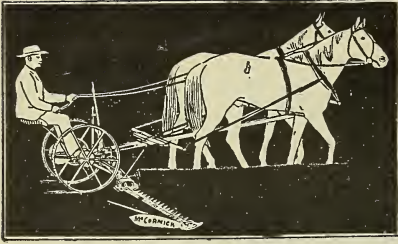
No delicate toy fixtures or ball bearings to take out and clean and tinker with when time is valuable.

Everybody knows that the sprocket and chain produces far less friction than cog wheels, that they are longer lived, and the application of power is more direct. This is a scientific fact. Harvesters and binders used to have cog wheels. They are now chain drive. Why? Because of its superior advantages. Who introduced the Chain Drive Harvesters? The Plano Manufacturing Company. Who fought and denounced the chain drive principle on harvesters? Our competitors. But they were finally forced to follow in the path of the Plano and would be glad to offer you a Chain Drive Mower today if it were possible for them to purchase the right to manufacture.

There are no gears in the Jones Chain Mower to wear out, no lost motion, no vibration, no noise. The bearings are always tight. All the power is applied directly to the desired result—CUTTING GRASS.



THE PLANO MFG. CO., Chicago, Ill.



New 4 Mower.

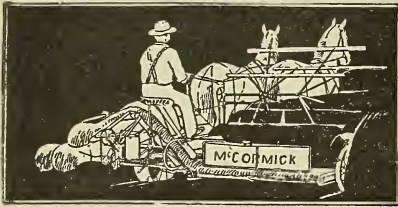
MCCORMICK

BINDERS AND MOWERS

Stand in the Front Rank in all Contests

**Easy to Operate,
Convenient to Handle,
Light Draft, Most Durable,
Work Perfect.**

BUY ONE AND GET
SATISFACTION. ❀❀



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.

COLUMBUS, OHIO.

The Gold Standard :::

has never been discussed in our advertising. It never will be. Our work is to maintain the Salt Standard. The following letter from a Pennsylvania creameryman suggests that a Salt Standard is necessary:—

Worcester, Pa., Jan. 26, 1900,

Mr. H. W. Gross:

Dear Sir:—We are in the market for "Salt that's ALL Salt." We take DIAMOND CRYSTAL for our standard. It's as good as the gold standard.

Yours truly, A. CUSTER.

Farmer's Creamery Association.

Creameries that use DIAMOND CRYSTAL often express surprise that all others do not follow their example. They can't see why anyone should prefer the lower grades. We can't explain, but we can say that a majority of the creameries, and some leading salt manufacturers are free to say that

THE SALT STANDARD

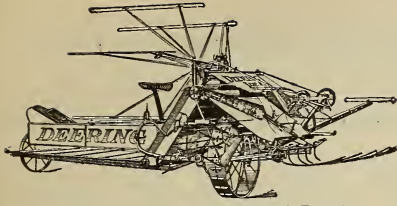
::: OF EXCELLENCE IS :::

DIAMOND CRYSTAL

Perhaps you would like to know what the leading schools and leading chemists have to say on this subject. If so, address

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

ADVERTISEMENTS.



Light Draft Deering Ideal Binder.

DEERING IDEAL BINDER

Makes Harvesting Easy.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ❀ ❀

Made in the Largest Harvest Works
in the World.

First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

— CHICAGO.



The Best Color in the World.

Wells, Richardson & Co.'s

Improved Butter Color.

E. SUDENDORF, Western Agent,

ELGIN, ILLINOIS.



A. H.
HARMON,

High-Grade
Merchant
Tailoring,

Hartman Block,
Cor. Main and
Fourth Streets,
Columbus, Ohio.

Cit. Phone 2958.

Chicago, October 29, 1900.

Farms loans at 4, 4½ and
5 per cent. on ten years'
time, with privilege of pay-
ing the whole, or any part
thereof, on any interest date.

STEPHEN
DEMMON & CO.,

Title and Trust Building,

Chicago, Ill.

PATENTS GUARANTEED

Our fee returned if we fail. Any one sending sketch and description of any invention will promptly receive our opinion free concerning the patentability of same. "How to obtain a patent" sent upon request. Patents secured through us advertised for sale at our expense.

Patents taken out through us receive *special notice*, without charge, in THE PATENT RECORD, an illustrated and widely circulated journal, consulted by Manufacturers and Investors.

Send for sample copy **FREE.** Address,

VICTOR J. EVANS & CO.,

(Patent Attorneys,)

Evans Building, - WASHINGTON, D. C.

Wanted—Ladies and gentlemen to introduce the "hottest" seller on earth. Dr. White's Electric Comb, patented 1899. Agents are coining money. Cures all forms of scalp ailments, headaches, etc., yet costs the same as an ordinary comb. Send 50c in stamps for sample.

D. N. ROSE, Gen. Mgr., Decatur, Ill.

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noises in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., COLUMBUS, OHIO

Discount to Students and Faculty.

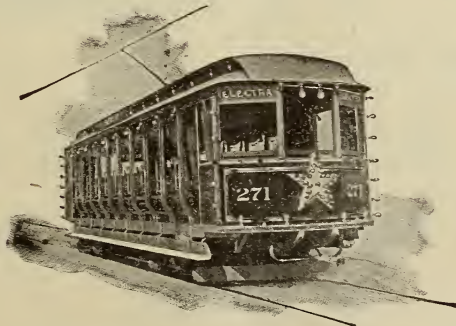
All Books of the O. S. U. Library
are bound by

The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs.



Every State Institution Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

JUST A MINUTE!

Did you ever use a Combined Churn and Worker? What kind? Were you satisfied with it? Did you ever use a

DISBROW

Combined Churn and Worker? If you have never used a **DISBROW**, you can't appreciate the advantages of a combined churn. Strong statement, isn't it? But it's true. Do you want proof? Ask other makers of combined churns why, if the machines they make NOW are better than the Disbrow, did they spend three years time and thousands of dollars trying to secure the Disbrow patents through the courts?

OWATONNA MFG. CO., Owatonna, Minn.
SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn.

Waterloo, Iowa.

Kansas City, Mo.

Omaha, Neb.

OUR SPECIALTIES.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizers, Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

* * Columbus, Ohio.

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

ADVERTISEMENTS.

America's Leading Horse Importers ..



WIN ON TWO CONTINENTS.

Six first prizes at the Iowa State Fair.

Seven first prizes at the Ohio State Fair.

Every possible first prize except one at the Paris Exposition with their Percheron and French Coach Stallions.

We buy in France and import every stallion possessing a high order of merit. If you want the best you will buy of us.

McLAUGHLIN BROTHERS,

Sixth and Wesley Aves.

COLUMBUS, OHIO.

REMEMBER THAT

Genesee Butter 
and Cheese Salts

ARE THE LEADING

DAIRY SALTS

OF AMERICA.

For further information address :

The Genesee Salt Company,

6 Harrison Street, NEW YORK.

ADVERTISEMENTS.

We have furnished the University and a large number of Professors and Students with

COAL



for the past three years.

MURRAY CITY COAL CO.

TELEPHONE 1435.

YARDS { Lane Avenue and H. V. R'y Crossing.
West Fifth Avenue and H. V. R'y Crossing.

Ohio Medical University.

DEPARTMENTS OF MEDICINE, DENTISTRY AND PHARMACY.

Four years graded course in Medicine, three in Dentistry, and two in Pharmacy.
Annual Sessions, seven months.

All instruction, except clinical, by the recitation plan.

Students graded on their daily recitations and term examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted, and equipped with modern apparatus. Abundant clinical facilities in both Medical and Dental Departments. **CONSIDERING SUPERIOR ADVANTAGES FEES ARE LOW.**

|| Sessions for 1900-1901
Begin Wednesday, Sept. 12. 1900.

For Catalogue and Other Information, Address
GEORGE M. WATERS, A. M., M. D., Dean, Medical Dep't.
OTTO ARNOLD, D. D. S., Dean, Dental Dep't.
GEO. H. MATSON, JR., G. PH., Dean, Pharmacy Dep't.

OHIO MEDICAL UNIVERSITY,

700-716 North Park Street, COLUMBUS, OHIO.

ADVERTISEMENTS.

SMITH'S Academies of DANCING, DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,
Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,
Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

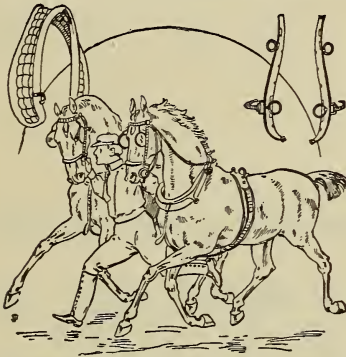
Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.



WM. BURDELL, JR.

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur
Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only. Send for
Catalogue.

81 North High Street. COLUMBUS, OHIO.

COME and use our tele-
phone, consult our
directory, and buy your
postage stamps at . .

KILER'S PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.

CHR. HANSEN'S



DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strong-
est, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is
guaranteed the strongest in the market, and in
every respect superior to every other except the
Danish.

Rennet Extract, Cheese Color, Rennet Tablets,
and Cheese Color Tablets for Farm Cheese Mak-
ing, Lactic Ferment, Marshall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

Slate and Metal
Roofing

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St.

COLUMBUS, O.

Telephone 1862.

You Should Know That

Star Wind Mills

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.

Galvanized Steel and Wood Tanks.

All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

**FARM SEEDS, VEGETABLE AND
FLOWER SEEDS, BULBS, &c.**

High-Grade Mixed Lawn
Seeds a Specialty.

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm

COLUMBUS, OHIO.

The **Kauffman-Lattimer Co.**

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty,

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition

AT BUFFALO IN 1901

Best reached via. "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.
Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.



The Acknowledged Headquarters for









CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town. Columbus, O.

Blackwood, Green & Co.

BUILDERS' HARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing.      



STOVES AND HOUSE FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Camplin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building,

   COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

Lumber, Lath, Shingles,



Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

....Telephone No. 279....

A Wonderful Invention.

They cure dandruff, hair falling, headache, etc., yet costs the same as an ordinary comb. What's that? Why, Dr. White's Electric Comb. The only patented Comb in the world. People, everywhere it has been introduced, are wild with delight. You simply comb your hair each day and the comb does the rest. This wonderful comb is simply unbreakable and is made so that it is *absolutely impossible* to break or cut the hair. Sold on a written guarantee to give *perfect* satisfaction in *every* respect. Send stamps for one. Ladies' size 50c.; Gents' size 35c. Live men and women wanted everywhere to introduce this article. Sells on sight. Agents are wild with success. (See want column of this paper.)

Address: D. N. ROSE, Gen. Mgr.,
Decatur, Ill.

 **Beggs** 

*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

**Carpets, Curtains, Wall
Paper, Etc.**

SIMPLEX Patent Combined Churn and Butter Worker.

"FACILE" BABCOCK TESTERS.

"B. & W." BOILERS AND ENGINES.

"B. & W." GALVANIZED STEEL CHEESE VATS.

"SPRAGUE" ADJUSTABLE AND "HELMER" CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

**Mowers,
 Reapers and
 Binders**

are made by

**THE WARDER, BUSHNELL
 AND GLESSNER COMPANY,**

SPRINGFIELD, OHIO.

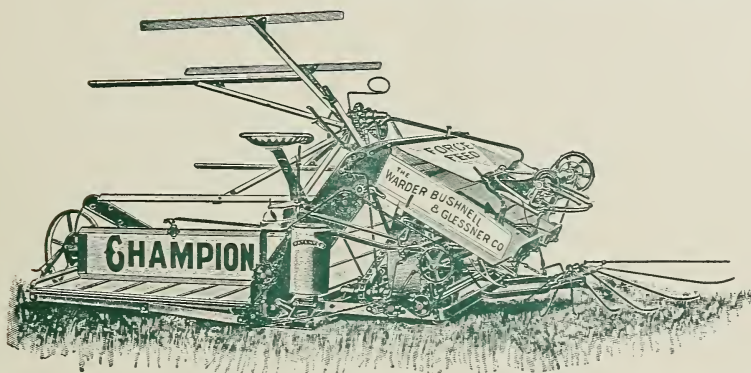
Largest and Most Complete Factory in the World engaged
 exclusively in making Grass and Grain
 Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and
 Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on
 each style of Champion Machines, so that when Repair
 Parts are ordered they are sure to fit, and easily put on.



MORE MILK.

Gluten Feed will produce at least one quart more milk per day per cow. A grain ration made up of ground oats, corn, bran, middlings and corn meal can be substituted with one-half the quantity of Gluten Feed, and the result will be a saving in the actual cost of the grain ration. In addition to this saving, there is also an increase in the flow of milk, improvement in the condition of the cattle, which insures an improvement in the quality of the milk. What more can we say in behalf of Gluten Feed? Those who have fed it tell us it is the cheapest and best milk-producing feed on the market. Try it and convince yourself that our statements are correct.

DEPARTMENT O. S.

The Glucose Sugar Refining Co.,
CHICAGO, ILLINOIS.

GOLD MEDAL
AWARDED THE
Improved United States Separator.



SOLELY ON ITS MERITS.



The Highest Award to any Separator Manufactured in America.

**THE ONLY SEPARATOR EXHIBITED AT PARIS IN SAME
STYLE AND FINISH AS FURNISHED TO DAIRYMEN ❀❀❀**

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

LIBRARY.
RECEIVED

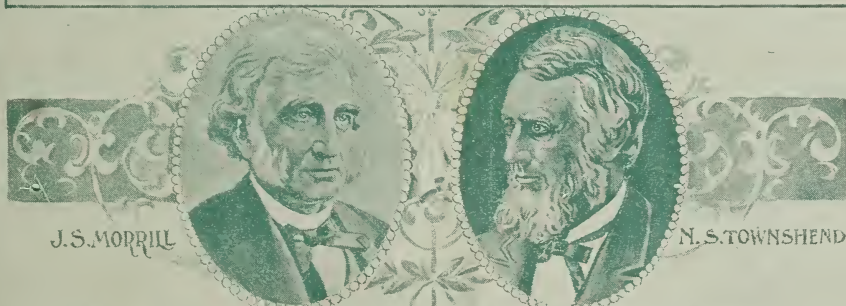
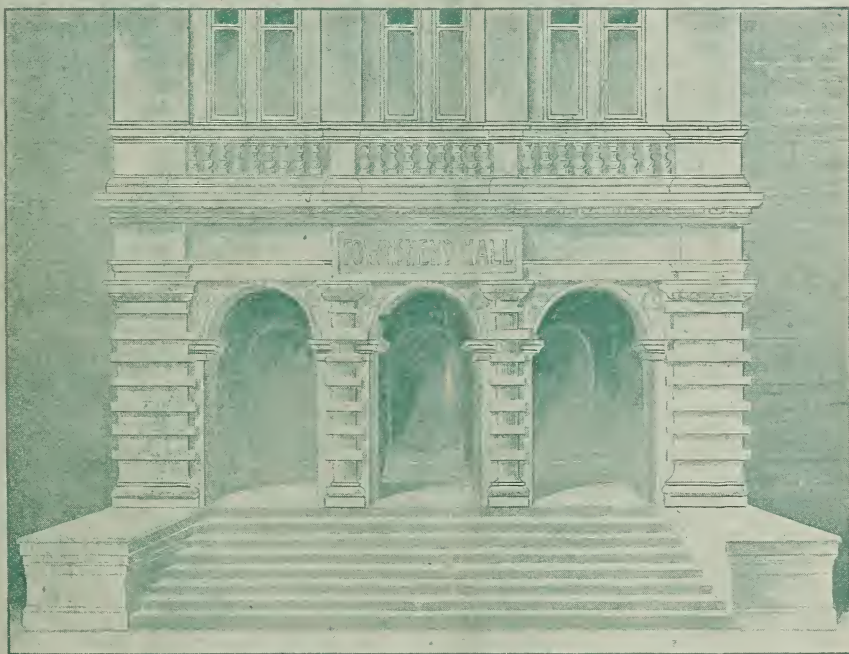
Vol. VII.

FEBRUARY, 1901

☆ FEB 7 1901 No. 6.

U. S. Department of Agriculture.

THE AGRICULTURAL STUDENT

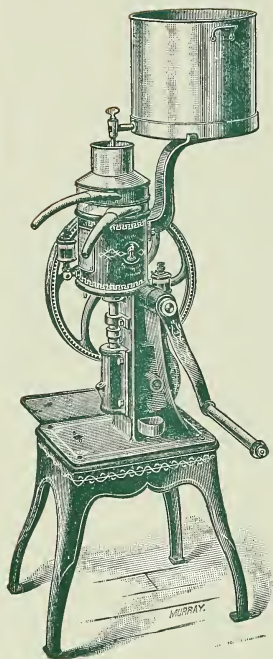


A MONTHLY MAGAZINE DEVOTED TO
AGRICULTURAL EDUCATION.

5 Cents per Copy.

50 Cents per Year.

"ALPHA-DE LAVAL" CREAM SEPARATORS.



The De Laval Cream Separators were first and have always been kept best. They have always led in improvements, which imitating machines must await the expiration of patents to use. The 20TH CENTURY improvements give them still greater capacity and efficiency. They are immeasurably superior to any other system or method that can be employed in the separation of cream—saving \$5.00 to \$10.00 per cow per year over any setting system and \$3.00 to \$5.00 over any other centrifugal method.

All sizes, styles and prices **\$50. to \$800.00**

SEND FOR NEW "20th CENTURY" CATALOGUE.

THE DE LAVAL SEPARATOR CO.

Randolph & Canal Sts.,
CHICAGO.

103 & 105 Mission St.,
SAN FRANCISCO.

General Offices :
74 CORTLANDT ST.,
NEW YORK.

1102 Arch Street,
PHILADELPHIA.
327 Commissioners St.,
MONTREAL.

ADVERTISEMENTS.

Five Grand Prizes in 1900 to the

BAKER ART GALLERY

For Superiority in Photography; including Gold Medal from the Paris Exposition, the only one Awarded to an American Photographer.

STATE AND HIGH STS.

Special Rates to Students.

DEPOSITARY OF THE OHIO STATE UNIVERSITY.

The Ohio National Bank

Of Columbus,
Ohio

Capital, \$400,000.

Surplus and Profits, \$90,000.

Deposits, \$2,400,000.

We do a general banking business, pay interest on time deposits, issue foreign drafts and letters of credit, buy and sell bonds, and make safe investments for our customers.

DIRECTORS—John Siebert, Geo. J. Hoster, Fred Lazarus, Conrad Born, Louis Siebert, Fred Theobald, Wm. M. Fisher, E. A. Cole, Alex. W. Krumm, Henry Richter, C. F. Myers, Emil Kiesewetter.

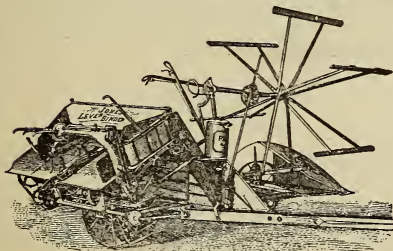
John Siebert, President; Emil Kiesewetter, Vice Pres't and Mgr.; C. F. Myers, Vice Pres't; L. F. Kiesewetter, Cashier; Henry Deeg, Ass't Cashier.

LIGHT . .
RUNNING

PLANO

BINDERS. MOWERS. HAY RAKES,
SICKLE GRINDERS, LEAD THE WORLD.

THE JONES LEVER BINDER



Is the highest attainment of the age, a marvel of simplicity and a model of symmetry, beauty and strength. The sweeping victories it has achieved in hundreds of actual field contests have made it the acknowledged favorite of the world.

For simplicity, durability, adjustability, lightness of draft and ease of management, the Jones Lever Binder has no equal. The Steel Lever displaces the train of cog wheels used on other machines, lessens the weight and simplifies the work. It has the simplest knottier in the world, the most vital part of a binder—never fails and cannot get out of order. Its powerful carrying spring adds life to the machine and makes it ride easy. Its reel with our patent friction clutch, will not break like other reels when striking the limb of a tree or obstruction in the grain. It is a modern, simplified machine, up-to-date—just what the farmer wants. Made of steel and malleable iron, it possesses the enduring qualities never before reached in a harvesting

machine. No cheap castings, no weak spots.

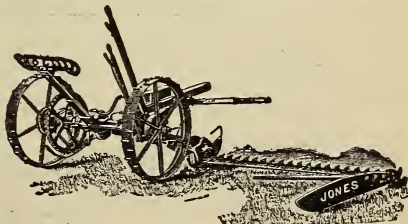
THE JONES CHAIN MOWER

Noiseless, light running, keen cutting. It possesses every improvement known to grass cutting machines and is without an equal. In thousands of meadows throughout the civilized world this simple mower, with its powerful cutting qualities, has won first place for supremacy and perfect work. With it we challenge the world and meet any competitor in a field of actual contest. It is annually sent out by tens of thousands and wherever you find one its owner will tell you "It is the most perfect machine on the farm."

No delicate toy fixtures or ball bearings to take out and clean and tinker with when time is valuable.

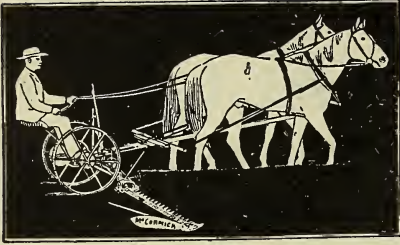
Everybody knows that the sprocket and chain produces far less friction than cog wheels, that they are longer lived, and the application of power is more direct. This is a scientific fact. Harvesters and binders used to have cog wheels. They are now chain drive. Why? Because of its superior advantages. Who introduced the Chain Drive Harvesters? The Plano Manufacturing Company. Who fought and denounced the chain drive principle on harvesters? Our competitors. But they were finally forced to follow in the path of the Plano and would be glad to offer you a Chain Drive Mower today if it were possible for them to purchase the right to manufacture.

There are no gears in the Jones Chain Mower to wear out, no lost motion, no vibration, no noise. The bearings are always tight. All the power is applied directly to the desired result—CUTTING GRASS.



THE PLANO MFG. CO., Chicago, Ill.

ADVERTISEMENTS.



New 4 Mower.

McCORMICK

BINDERS AND MOWERS

Stand in the Front Rank in all Contests

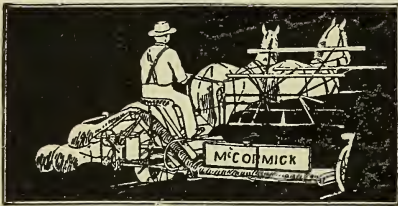
Easy to Operate,

Convenient to Handle,

Light Draft, Most Durable,

Work Perfect.

BUY ONE AND GET
SATISFACTION. ❧❧



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.

COLUMBUS, OHIO.

The Gold Standard :::

has never been discussed in our advertising. It never will be. Our work is to maintain the Salt Standard. The following letter from a Pennsylvania creameryman suggests that a Salt Standard is necessary:—

Worcester, Pa., Jan. 26, 1900,

Mr. H. W. Gross:

Dear Sir:—We are in the market for "Salt that's ALL Salt." We take DIAMOND CRYSTAL for our standard. It's as good as the gold standard.

Yours truly, A. CUSTER.

Farmer's Creamery Association.

Creameries that use DIAMOND CRYSTAL often express surprise that all others do not follow their example. They can't see why anyone should prefer the lower grades. We can't explain, but we can say that a majority of the creameries, and some leading salt manufacturers are free to say that

THE SALT STANDARD

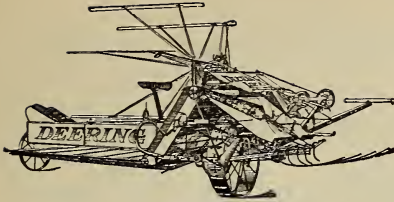
::: OF EXCELLENCE IS :::

DIAMOND CRYSTAL

Perhaps you would like to know what the leading schools and leading chemists have to say on this subject. If so, address

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

ADVERTISEMENTS.



DEERING IDEAL BINDER

Makes Harvesting Easy.

Light Draft Deering Ideal Binder.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ✿ ✿

Made in the Largest Harvest Works
in the World.

First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

—CHICAGO.



FIRST PRIZE WINNERS

AT STATE DAIRY CONVENTIONS HELD
IN NOVEMBER AND DECEMBER, 1900.

	SCORE.
IOWA—Separator—T. H. BALDWIN, Elliott.....	97¾
IOWA--Gathered Cream--P. C. FLASKEGAARD, Storm Lake.	95½
MINNESOTA—Dairy Convention—J. P. FRIDNER, Strout.	98
MINNESOTA—Buttermakers'—H. J. ROSENAU, Meriden.	97¾
SOUTH DAKOTA—O. DISTAD, De Smet.....	98¾
NEBRASKA—SOUTH PLATTE CRY. CO., York.....	95½
MISSOURI—J. D. AHRENS, Corning.....	97
NEW HAMPSHIRE--BAKERS' RIVER CRY., West Rumney	99½
MAINE—WATERFORD CRY., South Waterford....	97½
NEW YORK—B. C. ROCKWELL, West Bangor.....	98½
PENNSYLVANIA—T. W. WAITE, Smethport.....	95

They All Use

Wells, Richardson & Co.'s Improved Butter Color

THE OLD RELIABLE.

"The Kind That Has No Mud."



A. H.
HARMON,

High-Grade
Merchant
Tailoring,

Hartman Block,
Cor. Main and
Fourth Streets,
Columbus, Ohio.

Cit. Phone 2958.

Chicago, October 29, 1900.

Farms loans at 4, 4½ and
5 per cent. on ten years'
time, with privilege of pay-
ing the whole, or any part
thereof, on any interest date.

STEPHEN

DEMMON & CO.,

Title and Trust Building,

Chicago, Ill.

PATENTS GUARANTEED

Our fee returned if we fail. Any one sending sketch and description of any invention will promptly receive our opinion free concerning the patentability of same. "How to obtain a patent" sent upon request. Patents secured through us advertised for sale at our expense.

Patents taken out through us receive *special notice*, without charge, in THE PATENT RECORD, an illustrated and widely circulated journal, consulted by Manufacturers and Investors.

Send for sample copy **FREE.** Address,

VICTOR J. EVANS & CO.,

(Patent Attorneys,)

Evans Building, - WASHINGTON, D. C.

Wanted—Ladies and gentlemen to introduce the "hottest" seller on earth. Dr. White's Electric Comb, patented 1899. *Agents are coining money.* Cures all forms of scalp ailments, headaches, etc., yet costs the *same* as an ordinary comb. Send 50c in stamps for sample.

D. N. ROSE, Gen. Mgr., Decatur, Ill.

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noises in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., COLUMBUS, OHIO

Discount to Students and Faculty.

All Books of the O. S. U. Library
are bound by

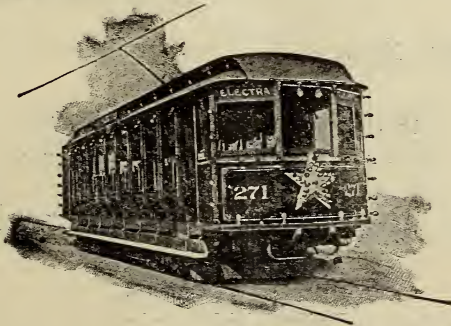
The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service

Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs.



Every State Institution

Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

JUST A MINUTE!

Did you ever use a Combined Churn and Worker? What kind? Were you satisfied with it? Did you ever use a

DISBROW

Combined Churn and Worker? If you have never used a **DISBROW**, you can't appreciate the advantages of a combined churn. Strong statement, isn't it? But it's true. Do you want proof? Ask other makers of combined churns why, if the machines they make NOW are better than the Disbrow, did they spend three years time and thousands of dollars trying to secure the Disbrow patents through the courts?

OWATONNA MFG. CO., Owatonna, Minn.
SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn.

Waterloo, Iowa.

Kansas City, Mo.

Omaha, Neb.

OUR SPECIALTIES.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizers, Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

* * Columbus, Ohio.

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

ADVERTISEMENTS.

America's Leading Horse Importers ..



WIN ON TWO CONTINENTS.

Six first prizes at the Iowa State Fair.

Seven first prizes at the Ohio State Fair.

Every possible first prize except one at the Paris Exposition with their Percheron and French Coach Stallions.

We buy in France and import every stallion possessing a high order of merit. If you want the best you will buy of us.

McLAUGHLIN BROTHERS,

Sixth and Wesley Aves.

COLUMBUS, OHIO.

REMEMBER THAT

Genesee Butter 
and Cheese Salts

ARE THE LEADING

DAIRY SALTS

OF AMERICA.

For further information address :

The Genesee Salt Company,

6 Harrison Street, NEW YORK.

ADVERTISEMENTS.

We have furnished the University and a large number of Professors and Students with

COAL



for the past three years.

MURRAY CITY COAL CO.

TELEPHONE 1435.

YARDS { Lane Avenue and H. V. R'y Crossing.
 { West Fifth Avenue and H. V. R'y Crossing.

Ohio Medical University.

DEPARTMENTS OF MEDICINE, DENTISTRY AND PHARMACY.

Four years graded course in Medicine, three in Dentistry, and two in Pharmacy.
Annual Sessions, seven months.

All instruction, except clinical, by the recitation plan.

Students graded on their daily recitations and term examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted, and equipped with modern apparatus. Abundant clinical facilities in both Medical and Dental Departments. **CONSIDERING SUPERIOR ADVANTAGES FEES ARE LOW.**

|| Sessions for 1900-1901

|| Begin Wednesday, Sept. 12. 1900.

For Catalogue and Other Information, Address
GEORGE M. WATERS, A. M., M. D., Dean, Medical Dep't.

OTTO ARNOLD, D. D. S., Dean, Dental Dep't.

GEO. H. MATSON, JR., G. PH., Dean, Pharmacy Dep't.

OHIO MEDICAL UNIVERSITY,

700-716 North Park Street, COLUMBUS, OHIO.

ADVERTISEMENTS.

SMITH'S Academies of DANCING, DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,
Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,
Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

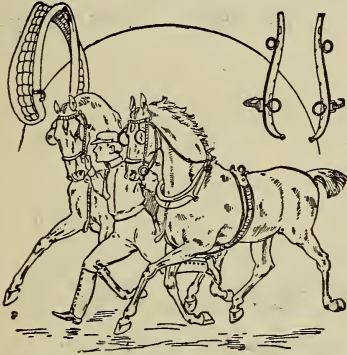
Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.



WM. BURDELL JR.,

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur

Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only. Send for

Catalogue.

81 North High Street.

COLUMBUS, OHIO.

COME and use our telephone, consult our directory, and buy your postage stamps at . .

KILER'S

PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.

CHR. HANSEN'S



DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strongest, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is guaranteed the strongest in the market, and in every respect superior to every other except the Danish.

Rennet Extract, Cheese Color, Rennet Tablets, and Cheese Color Tablets for Farm Cheese Making, Lactic Ferment, Marshall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

**Slate and Metal
Roofing**

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St.

COLUMBUS, O.

Telephone 1862.

You Should Know That

Star Wind Mills

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.

Galvanized Steel and Wood Tanks.

All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

**FARM SEEDS, VEGETABLE AND
FLOWER SEEDS, BULBS, &c.**

High-Grade Mixed Lawn
Seeds a Specialty.

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm

COLUMBUS, OHIO.

The Kauffman-Lattimer Co.

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty.

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition

AT BUFFALO IN 1901

Best reached via. "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.
Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.



The Acknowledged Headquarters for



CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town. Columbus, O.

Blackwood, Green & Co.

BUILDERS' H ARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing. ❖ ❖ ❖ ❖ ❖ ❖



STOVES AND HOUSE
FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Hamplin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building,

❖ ❖ ❖ COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

Lumber, Lath, Shingles,



Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

...Telephone No. 279....

A Wonderful Invention.

They cure dandruff, hair falling, headache, etc., yet costs the same as an ordinary comb. What's that? Why, Dr. White's Electric Comb. The only patented Comb in the world. People, everywhere it has been introduced, are wild with delight. You simply comb your hair each day and the comb does the rest. This wonderful comb is simply unbreakable and is made so that it is *absolutely impossible* to break or cut the hair. Sold on a written guarantee to give *perfect* satisfaction in *every* respect. Send stamps for one. Ladies' size 50c.; Gents' size 35c. Live men and women wanted everywhere to introduce this article. Sells on sight. Agents are wild with success. (See want column of this paper.)

Address: D. N. ROSE, Gen. Mgr.,
Decatur, Ill.

 **Beggs** 

*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

**Carpets, Curtains, Wall
Paper, Etc.**

SIMPLEX Patent Combined Churn and Butter Worker.

"FACILE" BABCOCK TESTERS.

"B. & W." BOILERS AND ENGINES.

"B. & W." GALVANIZED STEEL CHEESE VATS.

"SPRAGUE" ADJUSTABLE AND "HELMER" CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

**Mowers,
Reapers and
Binders**

are made by

**THE WARDER, BUSHNELL
AND GLESSNER COMPANY,**

SPRINGFIELD, OHIO.

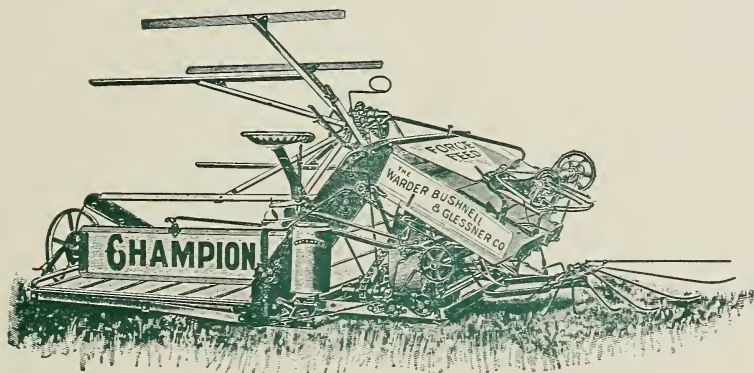
Largest and Most Complete Factory in the World engaged
exclusively in making Grass and Grain
Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and
Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on
each style of Champion Machines, so that when Repair
Parts are ordered they are sure to fit, and easily put on.



MORE MILK.

Gluten Feed will produce at least one quart more milk per day per cow. A grain ration made up of ground oats, corn, bran, middlings and corn meal can be substituted with one-half the quantity of Gluten Feed, and the result will be a saving in the actual cost of the grain ration. In addition to this saving, there is also an increase in the flow of milk, improvement in the condition of the cattle, which insures an improvement in the quality of the milk. What more can we say in behalf of Gluten Feed? Those who have fed it tell us it is the cheapest and best milk-producing feed on the market. Try it and convince yourself that our statements are correct.

DEPARTMENT O. S.

The Glucose Sugar Refining Co.,

CHICAGO, ILLINOIS.

GOLD MEDAL
AWARDED THE
Improved United States Separator.



SOLELY ON ITS MERITS.



The Highest Award to any Separator Manufactured in America.

**THE ONLY SEPARATOR EXHIBITED AT PARIS IN SAME
STYLE AND FINISH AS FURNISHED TO DAIRYMEN**

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

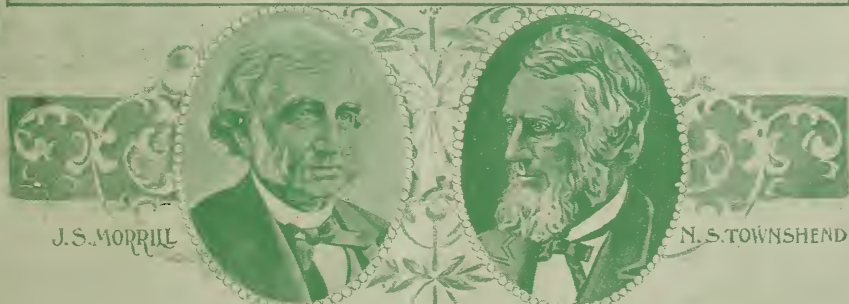
W. Geo.
Vol. VII.

OFFICE OF
EXPERIMENTAL AGRICULTURE
U. S. DEPARTMENT OF AGRICULTURE
MARCH, 1901.

No. 7.

THE AGRICULTURAL STUDENT

LIBRARY
RECEIVED
MAR 11 1901
U. S. Department of Agriculture.



A MONTHLY MAGAZINE DEVOTED TO
AGRICULTURAL EDUCATION.

5 Cents per Copy.

50 Cents per Year.

CREAM SEPARATORS.



THE dairy or farm users of cream separators may well profit by the experience and follow the example of the creamery or factory users of such machines on a large scale.

The differences between a superior and inferior separator are just as relatively material to the farm user as to the factory user. The amount is not a couple of thousand dollars a year, of course, as it is with the factory user, but it is from \$25 to \$75 (according to the quantity of milk), and that means just as much to the farm user. Moreover a De Laval machine is twice as well made and will last at least twice as long.

Every large and experienced creamery or factory concern in the country is now using De Laval machines and buying them exclusively. Nearly all these concerns have tried various "cheaper" makes of separators and many have cast aside thousands of dollars' worth of them.

Such facts mean something to every user or intending buyer of a separator—big or little. The differences between small separators are just the same as between big ones.

The De Laval machines can alone employ the patent protected "Alpha" disc system of divided strata separation. They bring standard prices and are made accordingly. In consequence they are as superior to the best of

other separators as such machines are to setting systems. The poorer makes of other separators are mere fakes.

A "20th Century" De Laval Catalogue will help to make these facts plain and may be had for the asking.



THE DE LAVAL SEPARATOR CO.

Randolph & Canal Sts.,
CHICAGO.

103 & 105 Mission St.,
SAN FRANCISCO.

General Offices :

74 CORTLANDT ST.,
NEW YORK.

248 McDermot Ave.,
WINNIPEG.

327 Commissioners St.,
MONTREAL.

ADVERTISEMENTS.

Five Grand Prizes in 1900 to the

BAKER ART GALLERY

For Superiority in Photography; including Gold Medal from the Paris Exposition, the only one Awarded to an American Photographer.

STATE AND HIGH STS.

Special Rates to Students.

DEPOSITARY OF THE OHIO STATE UNIVERSITY.

The Ohio National Bank Of Columbus, Ohio

Capital, \$400,000.

Surplus and Profits, \$90,000.

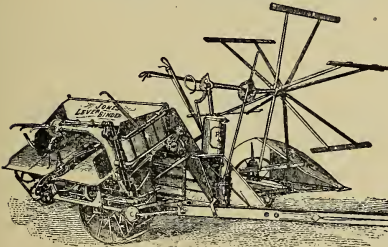
Deposits, \$2,400,000.

We do a general banking business, pay interest on time deposits, issue foreign drafts and letters of credit, buy and sell bonds, and make safe investments for our customers.

DIRECTORS—John Siebert, Geo. J. Hoster, Fred Lazarus, Conrad Born, Louis Siebert, Fred Theobald, Wm. M. Fisher, E. A. Cole, Alex. W. Krumm, Henry Richter, C. F. Myers, Emil Kiesewetter.

John Siebert, President; Emil Kiesewetter, Vice Pres't and Mgr.; C. F. Myers, Vice Pres't; L. F. Kiesewetter, Cashier; Henry Deeg, Ass't Cashier.

LIGHT . . **PLANO** BINDERS. MOWERS. HAY RAKES,
RUNNING SICKLE GRINDERS, LEAD THE WORLD.
THE JONES LEVER BINDER



Is the highest attainment of the age, a marvel of simplicity and a model of symmetry, beauty and strength. The sweeping victories it has achieved in hundreds of actual field contests have made it the acknowledged favorite of the world.

For simplicity, durability, adjustability, lightness of draft and ease of management, the Jones Lever Binder has no equal. The Steel Lever displaces the train of cog wheels used on other machines, lessens the weight and simplifies the work. It has the simplest knottor in the world, the most vital part of a binder—never fails and cannot get out of order. Its powerful carrying spring adds life to the machine and makes it ride easy. Its reel with our patent friction clutch, will not break like other reels when striking the limb of a tree or obstruction in the grain. It is a modern, simplified machine, up-to-date—just what the farmer wants. Made of steel and malleable iron, it possesses the enduring qualities never before reached in a harvesting

machine. No cheap castings, no weak spots.

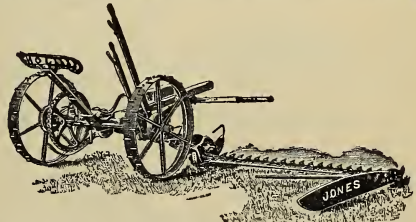
THE JONES CHAIN MOWER

Noiseless, light running, keen cutting. It possesses every improvement known to grass cutting machines and is without an equal. In thousands of meadows throughout the civilized world this simple mower, with its powerful cutting qualities, has won first place for supremacy and perfect work. With it we challenge the world and meet any competitor in a field of actual contest. It is annually sent out by tens of thousands and wherever you find one its owner will tell you "It is the most perfect machine on the farm."

No delicate toy fixtures or ball bearings to take out and clean and tinker with when time is valuable.

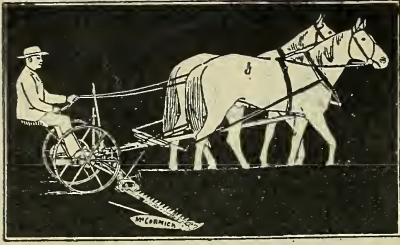
Everybody knows that the sprocket and chain produces far less friction than cog wheels, that they are longer lived, and the application of power is more direct. This is a scientific fact. Harvesters and binders used to have cog wheels. They are now chain drive. Why? Because of its superior advantages. Who introduced the Chain Drive Harvesters? The Plano Manufacturing Company. Who fought and denounced the chain drive principle on harvesters? Our competitors. But they were finally forced to follow in the path of the Plano and would be glad to offer you a Chain Drive Mower today if it were possible for them to purchase the right to manufacture.

There are no gears in the Jones Chain Mower to wear out, no lost motion, no vibration, no noise. The bearings are always tight. All the power is applied directly to the desired result—CUTTING GRASS.



THE PLANO MFG. CO., Chicago, Ill.

ADVERTISEMENTS.



New 4 Mower.

McCORMICK

BINDERS AND MOWERS

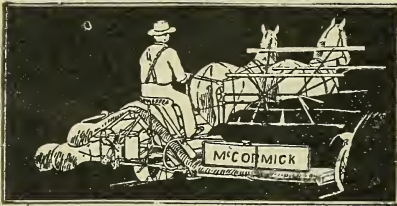
Stand in the Front Rank in all Contests

Easy to Operate,

Convenient to Handle,

Light Draft, Most Durable,
Work Perfect.

BUY ONE AND GET
SATISFACTION. ❀❀



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.

COLUMBUS, OHIO.


What makes
Salt purity?

{ lime left out
 { magnesium left out
 { chlorides left out
 { moisture left out

That's

Diamond Crystal Salt

“The Salt that's all Salt”


 The only
 Salt
 99.100
 per cent pure

Purity in salt means ease of mixing, freshness of butter, brilliance of color, ease of working, better price and an eager market. Common salt makes butter shrink in the rolls of the worker; makes butter salty in spots; makes butter gritty; makes butter taste like it had been in bad company. The delicate flakes of Diamond Crystal Salt dissolve immediately, do not work out, give a delightful flavor and keep it there.

DIAMOND CRYSTAL SALT CO.

ST. CLAIR, MICH.



ADVERTISEMENTS.

WHERE TO BUY FARM TRUCKS.

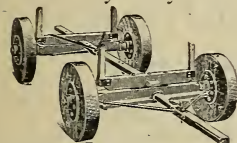
Of course you ought to have a low-down, broad-tire, flat-platform, short-turning farm truck, and you ought to have one that possesses all these features. There is but one such truck, and the Farmers' Handy Wagon Co., of Saginaw, Mich., own the patents for it. Have you ever



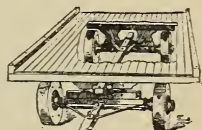
seen their catalogue? You ought to send for one at once. They are free. They tell you all about farm trucks. You know these people up in Saginaw were the first who ever built trucks for farmers. Theirs are the only ones used by the U. S. Government. During the late war they built 50 solid wheeled farm trucks per day for our Uncle Sam. They build trucks for nearly every civilized country on the globe. These are the reasons why they can build trucks cheaper and better than



anyone else. Then, too, they can ship a farmer any kind of a truck he needs, for they build all kinds as they own all the patents there are on farm trucks. They guarantee their patented wood wheels for five years, while it is impossible for you to get a guarantee on any other make longer than for one year. Well! I can't stop here to tell you all the reasons why these Michigan people are in better position to supply your wants than anyone else, but if you will just send your name on a postal card to the



Farmers' Handy Wagon Co., Saginaw, Mich., they will gladly send you full information and prices. Try it. It will cost you only one cent and may bring you information that will be valuable to you. P. S. I forgot to say that these same people can supply you with metal wheels for your old wagons.



NEW BOOK ON CHEESE MAKING

BY

PROF. JOHN W. DECKER,

In Charge of the OHIO DAIRY SCHOOL, and for Ten Years in Charge of the Cheese Work at the WISCONSIN DAIRY SCHOOL AND EXPERIMENT STATION.

PROF. DECKER'S "CHEDDAR CHEESE MAKING" has had a remarkable career, having been translated into French and passed through two English editions. Much valuable experimental work has been done with cheese in the past five years, and Prof. Decker has gathered this all together and added it to the old book so that it is brought up-to-date.

With the manufacture of Cheddar Cheese has been included the manufacture of Swiss, Brick, Limburger, Edam and Cottage Cheese. The chapters on the Constitution, Secretion and Care of Milk, and the Department of Rennet, are especially strong.

The book is a handsome volume of 208 PAGES, 6x9 INCHES, PRINTED ON FINE ENAMELED PAPER, AND BOUND IN ART CANVAS. Exactly 100 cuts, nearly one-half of which are fine half-tone engravings, have been used to illustrate it.

Such a book should readily sell for \$2.50, but the AGRICULTURAL STUDENT PUBLISHING CO. can send it to you (POSTPAID) for \$1.75, including one year's subscription to the AGRICULTURAL STUDENT.

Every farmer ought to have this book so that he can know just as well as the cheese maker what is authority on the care of milk, and the value of rich milk for cheese. Address:

Agricultural Student Publishing Co.

COLUMBUS, OHIO.

The High Street Tailors.

BOYS, THIS IS THE TIME
FOR SPRING SUITS.
YOU ALL KNOW THAT THE
HIGH STREET TAILORS
HAVE THE LATEST NOVEL-
TIES FOR THE
SPRING OF 1901 AT POPULAR
PRICES.

166 North High St.

Phone 1796.



Beggs



*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

Carpets, Curtains, Wall
Paper, Etc.

FIRST PRIZE WINNERS AT STATE DAIRY CONVENTIONS HELD IN NOVEMBER AND DECEMBER, 1900.

	SCORE.
IOWA—Separator—T. H. BALDWIN, Elliott.....	97 $\frac{3}{4}$
IOWA--Gathered Cream--P. C. FLASKEGAARD, Storm Lake.	95 $\frac{1}{2}$
MINNESOTA—Dairy Convention—J. P. FRIDNER, Strout.	98
MINNESOTA—Buttermakers'—H. J. ROSENAU, Meriden.	97 $\frac{3}{4}$
SOUTH DAKOTA—O. DISTAD, De Smet.....	98 $\frac{3}{4}$
NEBRASKA—SOUTH PLATTE CRY. Co., York.....	95 $\frac{1}{2}$
MISSOURI—J. D. AHRENS, Corning.....	97
NEW HAMPSHIRE—BAKERS' RIVER CRY., West Rumney	99 $\frac{1}{2}$
MAINE—WATERFORD CRY., South Waterford....	97 $\frac{1}{2}$
NEW YORK—B. C. ROCKWELL, West Bangor.....	98 $\frac{1}{2}$
PENNSYLVANIA—T. W. WAITE, Smethport.....	95

They All Use
Wells, Richardson & Co.'s Improved Butter Color
THE OLD RELIABLE.

"The Kind That Has No Mud."

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noises in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., COLUMBUS, OHIO

Discount to Students and Faculty.

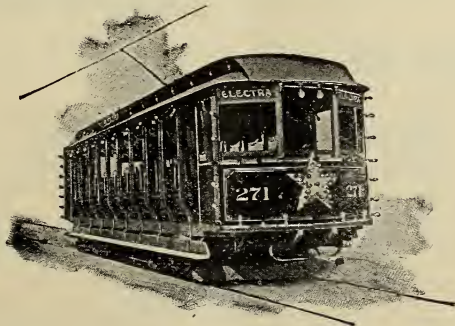
All Books of the O. S. U. Library
are bound by

The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs.



Every State Institution Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

JUST A MINUTE!

Did you ever use a Combined Churn and Worker? What kind? Were you satisfied with it? Did you ever use a

DISBROW

Combined Churn and Worker? If you have never used a **DISBROW**, you can't appreciate the advantages of a combined churn. Strong statement, isn't it? But it's true. Do you want proof? Ask other makers of combined churns why, if the machines they make NOW are better than the Disbrow, did they spend three years time and thousands of dollars trying to secure the Disbrow patents through the courts?

OWATONNA MFG. CO., Owatonna, Minn.
SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn.

Waterloo, Iowa.

Kansas City, Mo.

Omaha, Neb.

OUR SPECIALTIES.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Eigin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizers, Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

* * Columbus, Ohio.

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

ADVERTISEMENTS:

America's Leading Horse Importers ..



WIN ON TWO CONTINENTS.

Six first prizes at the Iowa State Fair.

Seven first prizes at the Ohio State Fair.

Every possible first prize except one at the Paris Exposition with their Percheron and French Coach Stallions.

We buy in France and import every stallion possessing a high order of merit. If you want the best you will buy of us.

McLAUGHLIN BROTHERS,

Sixth and Wesley Aves.

COLUMBUS, OHIO.

REMEMBER THAT

Genesee Butter 
and Cheese Salts

ARE THE LEADING

DAIRY SALTS

OF AMERICA.


For further information address:

The Genesee Salt Company,
6 Harrison Street, NEW YORK.

ADVERTISEMENTS.

We have furnished the University and a large number of Professors and Students with

COAL



for the past three years.

MURRAY CITY COAL CO.

TELEPHONE 1435.

YARDS { Lane Avenue and H. V. R'y Crossing.
West Fifth Avenue and H. V. R'y Crossing.

Ohio Medical University.

DEPARTMENTS OF MEDICINE, DENTISTRY AND PHARMACY.

Four years graded course in Medicine, three in Dentistry, and two in Pharmacy.
Annual Sessions, seven months.

All instruction, except clinical, by the recitation plan.

Students graded on their daily recitations and term examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted, and equipped with modern apparatus. Abundant clinical facilities in both Medical and Dental Departments. **CONSIDERING SUPERIOR ADVANTAGES FEES ARE LOW.**

|| Sessions for 1900-1901
|| **Begin Wednesday, Sept. 12. 1900.**

For Catalogue and Other Information, Address
GEORGE M. WATERS, A. M., M. D., Dean, Medical Dep't.
OTTO ARNOLD, D. D. S., Dean, Dental Dep't.
GEO. H. MATSON, JR., G. PH., Dean, Pharmacy Dep't.

OHIO MEDICAL UNIVERSITY,

700-716 North Park Street, COLUMBUS, OHIO.

ADVERTISEMENTS.

SMITH'S Academies of DANCING,

DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,

Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,

Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

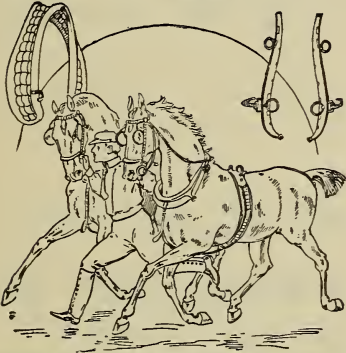
Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.



WM. BURDELL JR.,

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur

Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only Send for

Catalogue.

81 North High Street.

COLUMBUS, OHIO.

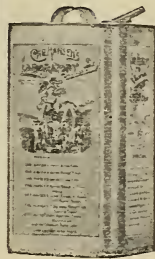
COME and use our telephone, consult our directory, and buy your postage stamps at . .

KILER'S PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.

CHR. HANSEN'S



DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strongest, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is guaranteed the strongest in the market, and in every respect superior to every other except the Danish.

Rennet Extract, Cheese Color, Rennet Tablets, and Cheese Color Tablets for Farm Cheese Making, Lactic Ferment, Marschall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

**Slate and Metal
Roofing**

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St.

COLUMBUS, O.

Telephone 1862.

You Should Know That

Star Wind Mills

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.

Galvanized Steel and Wood Tanks.

All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

High-Grade Mixed Lawn
Seeds a Specialty.

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

**FARM SEEDS, VEGETABLE AND
FLOWER SEEDS, BULBS, &c.**

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm

COLUMBUS, OHIO.

The Kauffman-Lattimer Co.

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty.

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition

AT BUFFALO IN 1901

Best reached via. "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.
Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE ❀ ❀

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.

❀

The Acknowledged Headquarters for



CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town. Columbus, O.

Blackwood, Green & Co.

BUILDERS' **H**ARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing. ❀ ❀ ❀ ❀ ❀ ❀



STOVES AND HOUSE
FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Champlin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building,

❀ ❀ ❀ COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

Lumber, Lath, Shingles,

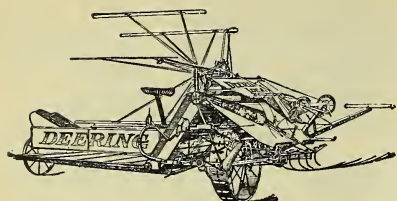


Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

...Telephone No. 279....

ADVERTISEMENTS.



Light Draft Deering Ideal Binder.

DEERING IDEAL BINDER

Makes Harvesting Easy.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ❁ ❁

Made in the Largest Harvest Works
in the World.


First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

 **CHICAGO.**



SIMPLEX Patent Combined Churn and Butter Worker.

“FACILE” BABCOCK TESTERS.

“B. & W.” BOILERS AND ENGINES.

“B. & W.” GALVANIZED STEEL CHEESE VATS.

“SPRAGUE” ADJUSTABLE AND “HELMER” CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

Mowers,
Reapers and
Binders

**THE WARDER, BUSHNELL
 AND GLESSNER COMPANY,**
 SPRINGFIELD, OHIO.

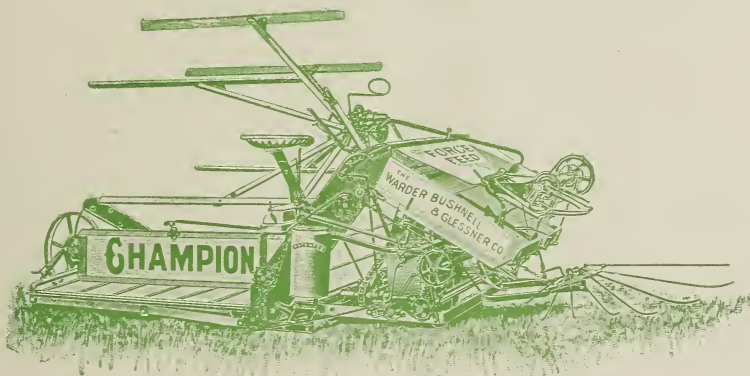
Largest and Most Complete Factory in the World engaged
 exclusively in making Grass and Grain
 Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and
 Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on
 each style of Champion Machines, so that when Repair
 Parts are ordered they are sure to fit, and easily put on.



MORE MILK.

Gluten Feed will produce at least one quart more milk per day per cow. A grain ration made up of ground oats, corn, bran, middlings and corn meal can be substituted with one-half the quantity of Gluten Feed, and the result will be a saving in the actual cost of the grain ration. In addition to this saving, there is also an increase in the flow of milk, improvement in the condition of the cattle, which insures an improvement in the quality of the milk. What more can we say in behalf of Gluten Feed? Those who have fed it tell us it is the cheapest and best milk-producing feed on the market. Try it and convince yourself that our statements are correct.

DEPARTMENT O. S.

The Glucose Sugar Refining Co.,
 CHICAGO, ILLINOIS.

GOLD MEDAL
AWARDED THE
Improved United States Separator.



SOLELY ON ITS MERITS.



The Highest Award to any Separator Manufactured in America.

THE ONLY SEPARATOR EXHIBITED AT PARIS IN SAME
STYLE AND FINISH AS FURNISHED TO DAIRYMEN

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

Vol. VII

OFFICE OF
EXPERIMENT STATIONS
U. S. Department of Agriculture

APRIL, 1901.

No. 8.

THE AGRICULTURAL STUDENT

LIBRARY

RECEIVED

MAY 24 1901

U. S. Department of Agriculture



J.S. MORRILL

N.S. TOWNSHEND

A MONTHLY MAGAZINE DEVOTED TO
AGRICULTURAL EDUCATION.

5 Cents per Copy.

50 Cents per Year.

CREAM SEPARATORS.



THE dairy or farm users of cream separators may well profit by the experience and follow the example of the creamery or factory users of such machines on a large scale.

The differences between a superior and inferior separator are just as relatively material to the farm user as to the factory user. The amount is not a couple of thousand dollars a year, of course, as it is with the factory user, but it is from \$25 to \$75 (according to the quantity of milk), and that means just as much to the farm user. Moreover a De Laval machine is twice as well made and will last at least twice as long.

Every large and experienced creamery or factory concern in the country is now using De Laval machines and buying them exclusively. Nearly all these concerns have tried various "cheaper" makes of separators and many have cast aside thousands of dollars' worth of them.

Such facts mean something to every user or intending buyer of a separator—big or little. The differences between small separators are just the same as between big ones.

The De Laval machines can alone employ the patent protected "Alpha" disc system of divided strata separation. They bring standard prices and are made accordingly. In consequence they are as superior to the best of

**A "20th Century" De Laval Catalogue
will help to make these facts plain
and may be had for the asking.**

other separators as such machines are to setting systems. The poorer makes of other separators are mere fakes.



THE DE LAVAL SEPARATOR CO.

Randolph & Canal Sts.,
CHICAGO.

103 & 105 Mission St.,
SAN FRANCISCO.

General Offices:

74 CORTLANDT ST.,
NEW YORK.

248 McDermot Ave.,
WINNIPEG.

327 Commissioners St.,
MONTREAL.

ADVERTISEMENTS.

Five Grand Prizes in 1900 to the

BAKER ART GALLERY

For Superiority in Photography; including Gold Medal from the Paris Exposition, the only one Awarded to an American Photographer.

Special Rates to Students.

STATE AND HIGH STS.

DEPOSITARY OF THE OHIO STATE UNIVERSITY.

The Ohio National Bank Of Columbus, Ohio

Capital, \$400,000.

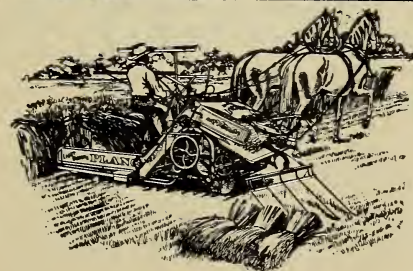
Surplus and Profits, \$90,000.

Deposits, \$2,400,000.

We do a general banking business, pay interest on time deposits, issue foreign drafts and letters of credit, buy and sell bonds, and make safe investments for our customers.

DIRECTORS—John Siebert, Geo. J. Hoster, Fred Lazarus, Conrad Born, Louis Siebert, Fred Theobald, Wm. M. Fisher, E. A. Cole, Alex. W. Krumm, Henry Richter, C. F. Myers, Emil Kiesewetter.

John Siebert, President; Emil Kiesewetter, Vice Pres't and Mgr.; C. F. Myers, Vice Pres't; L. F. Kiesewetter, Cashier; Henry Deeg, Ass't Cashier.



PLANO
LIGHT RUNNING

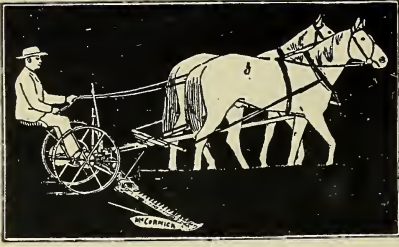
**HARVESTING MACHINES
LEAD THE WORLD
For Actual Field Efficiency.**

THE JONES LEVER BINDER is not only the simplest and lightest running binder built, but is the strongest cutter and surest tier.

It holds the world's record for accuracy in binding. It's the only binder with a Fly-Wheel—a storehouse of power that takes it easily through the heaviest grain or over mry ground. Its FRICTION CLUTCH REEL, FAMOUS LEVER DEVICE, CARRYING SPRING, etc., are up-to-date inventions that save money in the harvest field—save time—save worry. If you care to keep posted on the World's Best Binders, Headers, Mowers, Reapers, Hay Rakes, Sickie Grinders, send for a Plano Catalogue.

THE PLANO MFG. CO., Chicago, Ill.

ADVERTISEMENTS.



New 4 Mower.

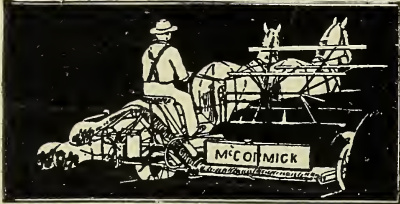
McCORMICK

BINDERS AND MOWERS

Stand in the Front Rank in all Contests

Easy to Operate,
 Convenient to Handle,
 Light Draft, Most Durable,
 Work Perfect.

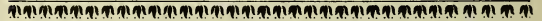
BUY ONE AND GET
SATISFACTION. ❧❧



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.



COLUMBUS, OHIO.

What makes
 Salt purity?

{ lime left out
 { magnesium left out
 { chlorides left out
 { moisture left out

That's

Diamond Crystal Salt

"The Salt that's all Salt"



The only
 Salt
 99.100
 per cent pure



Purity in salt means ease of mixing, freshness of butter, brilliance of color, ease of working, better price and an eager market. Common salt makes butter shrink in the rolls of the worker; makes butter salty in spots; makes butter gritty; makes butter taste like it had been in bad company. The delicate flakes of Diamond Crystal Salt dissolve immediately, do not work out, give a delightful flavor and keep it there.

DIAMOND CRYSTAL SALT CO.

ST. CLAIR, MICH.



No Sour Milk for this Pig; No High Wheel Wagon for this Farmer.

The Literary Digest Issued Weekly 32 Pages, Illustrated

"All the Periodicals in One."

TYPICAL OPINIONS FROM SUBSCRIBERS.

Edward Markham, Brooklyn, N. Y.: "THE LITERARY DIGEST is a time-saver, a money-saver, and a worry-saver. It threshes out the world for me every week. I know of nothing better of its kind in the periodical field; and I always recommend it to my friends."

Edmund Clarence Stedman writes: "In this, my country home, THE LITERARY DIGEST is the one weekly that cannot be spared. I rely upon it for my sure and quick knowledge of the current scientific, literary, political movements and results, and really think it has come to be the best edited journal of its kind."

Bishop F. D. Huntington, D. D., LL. D., Diocese of Central New York: "With my family I read every number of THE LITERARY DIGEST with much interest, and then send it to my son, a clergyman."

Seymour D. Thompson, Counsellor at Law, New York City: "I do you no more than justice in saying that I am able to indorse everything you claim for THE LITERARY DIGEST. It is by far the most meritorious publication that comes to my desk."

Senator William P. Frye: "It will afford immense assistance to the scholars of the country."

E. P. Powell, D. D., in Unity, Chicago, Ill.: "THE LITERARY DIGEST is an absolute necessity to those who would keep in-line with the progress of thought and achievement. I do not see how any thinking man can get along without it."

10 Cents per Copy. \$3.00 per Year.

Send for descriptive circular.

FUNK & WAGNALLS COMPANY, New York.



The dearest scale you can buy is one with no reputation back of it—one which is not built on correct principles and cannot remain accurate. You can depend on an Osgood. They have been on the market 35 years. Over 25,000 buyers can recommend them. Osgood on a beam is a guarantee of excellence. If your dealer cannot quote you, write us direct, don't wait. We save you money. OSGOOD SCALE (Co., 345 Central St., Binghamton, N. Y. Established 1865.

The High Street Tailors.

BOYS, THIS IS THE TIME
FOR SPRING SUITS.
YOU ALL KNOW THAT THE
HIGH STREET TAILORS
HAVE THE LATEST NOVEL-
TIES FOR THE
SPRING OF 1901 AT POPULAR
PRICES.

166 North High St.

Phone 1796.

 **Beggs** 

*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

**Carpets, Curtains, Wall
Paper, Etc.**

EVERYTHING IN SIGHT!

That is the claim made on this page last month for
Wells, Richardson & Co.'s Improved Butter Color

Butter colored with this color won, at the National Convention held at St. Paul, Minn., first and second in separator class, first and second in gathered cream class, and four out of five cups. Eighty per cent. of the entries were colored with the Improved Butter Color.

PRIZE WINNERS—SEPARATOR CLASS.

E. O. Quenvold, Owatonna, Minn 97
C. H. Jensen, Bernadotte, Minn 96½

GATHERED CREAM CLASS.

W. S. Noble, South Waterford, Me 91
M. Magnusson, Bee, Minn 90¾

CUP WINNERS.

Iowa---Marvin Powers, Corley 94.50
Illinois---F. E. Barrett, Union 93
South Dakota---O. L. Distad, De Smet 93
Vermont---Wm. V. Beach, Charlotte 93.50

They All Use

"The Kind That Has No Mud."

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noise in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., COLUMBUS, OHIO

Discount to Students and Faculty.

All Books of the O. S. U. Library
are bound by

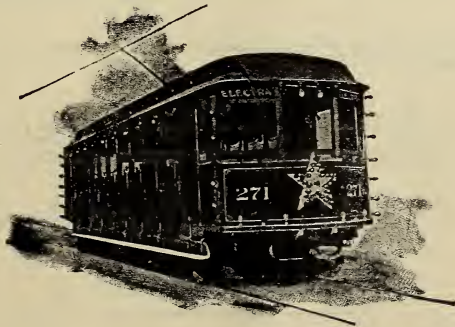
The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service

Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs.



Every State Institution

Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

JUST A MINUTE!

Did you ever use a Combined Churn and Worker? What kind?
Were you satisfied with it? Did you ever use a

DISBROW

Combined Churn and Worker? If you have never used a **DISBROW**, you can't appreciate the advantages of a combined churn. Strong statement, isn't it? But it's true. Do you want proof? Ask other makers of combined churns why, if the machines they make NOW are better than the Disbrow, did they spend three years time and thousands of dollars trying to secure the Disbrow patents through the courts?

OWATONNA MFG. CO., Owatonna, Minn.

SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn.

Waterloo, Iowa.

Kansas City, Mo.

Omaha, Neb.

OUR SPECIALTIES.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizers, Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

* * Columbus, Ohio.

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

America's Leading Horse Importers ..



WIN ON TWO CONTINENTS.

Six first prizes at the Iowa State Fair.

Seven first prizes at the Ohio State Fair.

Every possible first prize except one at the Paris Exposition with their Percheron and French Coach Stallions.

We buy in France and import every stallion possessing a high order of merit. If you want the best you will buy of us.

McLAUGHLIN BROTHERS,

Sixth and Wesley Aves.

COLUMBUS, OHIO.

REMEMBER THAT

Genesee Butter 
and Cheese Salts

ARE THE LEADING

DAIRY SALTS

OF AMERICA.

For further information address :

The Genesee Salt Company,

6 Harrison Street, NEW YORK.

ADVERTISEMENTS.

We have furnished the University and a large number of Professors and Students with

COAL



for the past three years.

MURRAY CITY COAL CO.

TELEPHONE 1435.

YARDS { Lane Avenue and H. V. R'y Crossing.
West Fifth Avenue and H. V. R'y Crossing.

Ohio Medical University.

DEPARTMENTS OF MEDICINE. DENTISTRY AND PHARMACY.

Four years graded course in Medicine, three in Dentistry, and two in Pharmacy.
Annual Sessions, seven months.

All instruction, except clinical, by the recitation plan.

Students graded on their daily recitations and term examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted, and equipped with modern apparatus. Abundant clinical facilities in both Medical and Dental Departments. **CONSIDERING SUPERIOR ADVANTAGES FEES ARE LOW.**

|| Sessions for 1900=1901
Begin Wednesday, Sept. 12. 1900.

For Catalogue and Other Information, Address
GEORGE M. WATERS, A. M., M. D., Dean, Medical Dep't.

OTTO ARNOLD, D. D. S., Dean, Dental Dep't.

GEO. H. MATSON, JR., G. PH., Dean, Pharmacy Dep't.

OHIO MEDICAL UNIVERSITY,

700-716 North Park Street, COLUMBUS, OHIO.

ADVERTISEMENTS.

SMITH'S Academies of DANCING,

DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,

Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,

Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

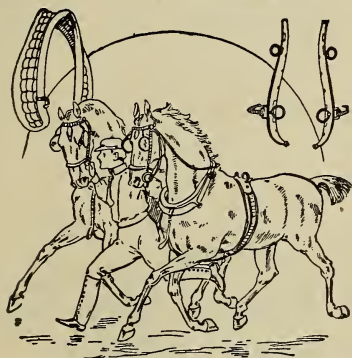
Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.



WM. BURDELL JR.,

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur
Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only Send for

Catalogue.

81 North High Street. COLUMBUS, OHIO.

COME and use our tele-
phone, consult our
directory, and buy your
postage stamps at . .

KILER'S PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.



CHR. HANSEN'S

DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strong-
est, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is
guaranteed the strongest in the market, and in
every respect superior to every other except the
Danish.

Rennet Extract, Cheese Color, Rennet Tablets,
and Cheese Color Tablets for Farm Cheese Mak-
ing, Lactic Ferment, Marshall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

**Slate and Metal
Roofing**

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St.

COLUMBUS, O.

Telephone 1862.

You Should Know That

Star Wind Mills

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.

Galvanized Steel and Wood Tanks.

All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

**FARM SEEDS, VEGETABLE AND
FLOWER SEEDS, BULBS, &c.**

**High-Grade Mixed Lawn
Seeds a Specialty.**

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm

COLUMBUS, OHIO.

The Kauffman-Lattimer Co.

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty.

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition

AT BUFFALO IN 1901

Best reached via "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.
Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.



The Acknowledged Headquarters for









CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town, Columbus, O.

Blackwood, Green & Co.

BUILDERS' HARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing.      



STOVES AND HOUSE
FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Champlin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building,

   COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

Lumber, Lath, Shingles,

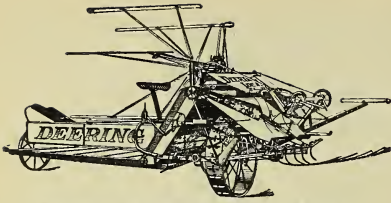


Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

....Telephone No. 279....

ADVERTISEMENTS.



DEERING IDEAL BINDER

Makes Harvesting Easy.

Light Draft Deering Ideal Binder.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ♣ ♣

Made in the Largest Harvest Works
in the World.

First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

— CHICAGO.



SIMPLEX

Patent Combined Churn and Butter Worker.

"FACILE" BABCOCK TESTERS.

"B. & W." BOILERS AND ENGINES.

"B. & W." GALVANIZED STEEL CHEESE VATS.

"SPRAGUE" ADJUSTABLE AND "HELMER" CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

Mowers,
Reapers and
Binders

**THE WARDER, BUSHNELL
AND GLESSNER COMPANY,**

SPRINGFIELD, OHIO.

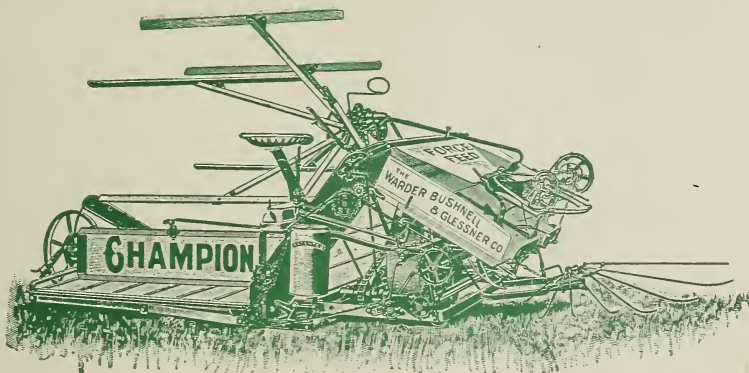
Largest and Most Complete Factory in the World engaged
exclusively in making Grass and Grain
Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and
Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on
each style of Champion Machines, so that when Repair
Parts are ordered they are sure to fit, and easily put on.



MORE MILK.

Gluten Feed will produce at least one quart more milk per day per cow. A grain ration made up of ground oats, corn, bran, middlings and corn meal can be substituted with one-half the quantity of Gluten Feed, and the result will be a saving in the actual cost of the grain ration. In addition to this saving, there is also an increase in the flow of milk, improvement in the condition of the cattle, which insures an improvement in the quality of the milk. What more can we say in behalf of Gluten Feed? Those who have fed it tell us it is the cheapest and best milk-producing feed on the market. Try it and convince yourself that our statements are correct.

DEPARTMENT O. S.

The Glucose Sugar Refining Co.,
CHICAGO, ILLINOIS.

GOLD MEDAL
AWARDED THE
Improved United States Separator.



SOLELY ON ITS MERITS.



The Highest Award to any Separator Manufactured in America.

**THE ONLY SEPARATOR EXHIBITED AT PARIS IN SAME
STYLE AND FINISH AS FURNISHED TO DAIRYMEN** ❧ ❧ ❧

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

THE AGRICULTURAL STUDENT

LIBRARY
RECEIVED
1901
U. S. Department of Agriculture



J.S. MORRILL

N.S. TOWNSEND

A MONTHLY MAGAZINE DEVOTED TO
AGRICULTURAL EDUCATION.

CREAM SEPARATORS.



THE dairy or farm users of cream separators may well profit by the experience and follow the example of the creamery or factory users of such machines on a large scale.

The differences between a superior and inferior separator are just as relatively material to the farm user as to the factory user. The amount is not a couple of thousand dollars a year, of course, as it is with the factory user, but it is from \$25 to \$75 (according to the quantity of milk), and that means just as much to the farm user. Moreover a De Laval machine is twice as well made and will last at least twice as long.

Every large and experienced creamery or factory concern in the country is now using De Laval machines and buying them exclusively. Nearly all these concerns have tried various "cheaper" makes of separators and many have cast aside thousands of dollars' worth of them.

Such facts mean something to every user or intending buyer of a separator—big or little. The differences between small separators are just the same as between big ones.

The De Laval machines can alone employ the patent protected "Alpha" disc system of divided strata separation. They bring standard prices and are made accordingly. In consequence they are as superior to the best of

A "20th Century" De Laval Catalogue will help to make these facts plain and may be had for the asking.

other separators as such machines are to setting systems. The poorer makes of other separators are mere fakes.



THE DE LAVAL SEPARATOR CO.

Randolph & Canal Sts.,
CHICAGO.

103 & 105 Mission St.,
SAN FRANCISCO.

General Offices :
74 CORTLANDT ST.,
NEW YORK.

248 McDermot Ave.,
WINNIPEG.

327 Commissioners St.,
MONTREAL.

ADVERTISEMENTS.

Five Grand Prizes in 1900 to the

BAKER ART GALLERY

For Superiority in Photography; including Gold Medal from the Paris Exposition, the only one Awarded to an American Photographer.

STATE AND HIGH STS.

Special Rates to Students.

DEPOSITARY OF THE OHIO STATE UNIVERSITY.

The Ohio National Bank Of Columbus, Ohio

Capital, \$400,000.

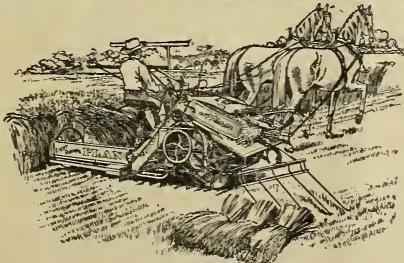
Surplus and Profits, \$90,000.

Deposits, \$2,400,000.

We do a general banking business, pay interest on time deposits, issue foreign drafts and letters of credit, buy and sell bonds, and make safe investments for our customers.

DIRECTORS—John Siebert, Geo. J. Hoster, Fred Lazarus, Conrad Born, Louis Siebert, Fred Theobald, Wm. M. Fisher, E. A. Cole, Alex. W. Krumm, Henry Richter, C. F. Myers, Emil Kiesewetter.

John Siebert, President; Emil Kiesewetter, Vice Pres't and Mgr.; C. F. Myers, Vice Pres't; L. F. Kiesewetter, Cashier; Henry Deeg, Ass't Cashier.



PLANO
LIGHT RUNNING

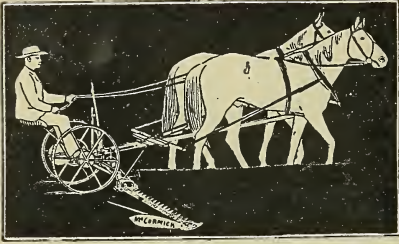
**HARVESTING MACHINES
LEAD THE WORLD
For Actual Field Efficiency.**

THE JONES LEVER BINDER is not only the simplest and lightest running binder built, but is the strongest cutter and surest tier.

It holds the world's record for accuracy in binding. It's the only binder with a Fly-Wheel—a storehouse of power that takes it easily through the heaviest grain or over miry ground. Its FRICTION CLUTCH REEL, FAMOUS LEVER DEVICE, CARRYING SPRING, etc., are up-to-date inventions that save money in the harvest field—save time—save worry. If you care to keep posted on the World's Best Binders, Headers, Mowers, Reapers, Hay Rakes, Sickles Grinders, send for a Plano Catalogue.

THE PLANO MFG. CO., Chicago, Ill.

ADVERTISEMENTS.



New 4 Mower.

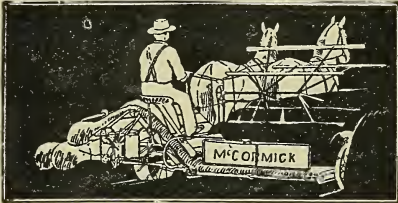
McCORMICK

BINDERS AND MOWERS

Stand in the Front Rank in all Contests

Easy to Operate,
Convenient to Handle,
Light Draft, Most Durable,
Work Perfect.

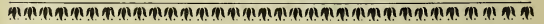
BUY ONE AND GET
SATISFACTION. ❀



Right Hand Open Elevator Binder.

Descriptive Catalogue Mailed Free
to any Address.

McCormick Harvesting Machine Co.



COLUMBUS, OHIO.

What makes
Salt purity?

{ lime left out
magnesium left out
chlorides left out
moisture left out

That's

Diamond Crystal Salt

"The Salt that's all Salt"



The only
Salt
99.100
per cent pure

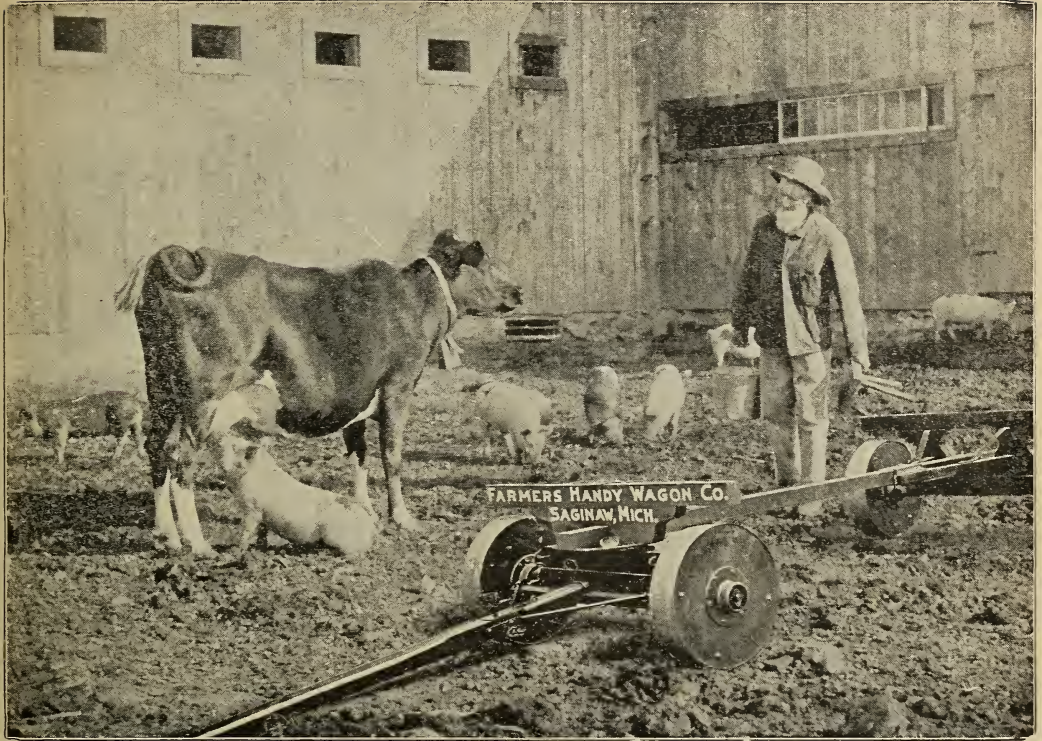


Purity in salt means ease of mixing, freshness of butter, brilliance of color, ease of working, better price and an eager market. Common salt makes butter shrink in the rolls of the worker; makes butter salty in spots; makes butter gritty; makes butter taste like it had been in bad company. The delicate flakes of Diamond Crystal Salt dissolve immediately, do not work out, give a delightful flavor and keep it there.

DIAMOND CRYSTAL SALT CO.

ST. CLAIR, MICH.

ADVERTISEMENTS.



No Sour Milk for this Pig; No High Wheel Wagon for this Farmer.

The Literary Digest

Issued Weekly
32 Pages, Illustrated

"All the Periodicals in One."

TYPICAL OPINIONS FROM SUBSCRIBERS.

Edward Markham, Brooklyn, N. Y.: "THE LITERARY DIGEST is a time-saver, a money-saver, and a worry-saver. It threshes out the world for me every week. I know of nothing better of its kind in the periodical field; and I always recommend it to my friends."

Edmund Clarence Stedman writes: "In this, my country home, THE LITERARY DIGEST is the one weekly that cannot be spared. I rely upon it for my sure and quick knowledge of the current scientific, literary, political movements and results, and really think it has come to be the best edited journal of its kind."

Bishop F. D. Huntington, D. D., LL. D., Diocese of Central New York: "With my family I read every number of THE LITERARY DIGEST with much interest, and then send it to my son, a clergyman."

Seymour D. Thompson, Counsellor at Law, New York City: "I do you no more than justice in saying that I am able to indorse everything you claim for THE LITERARY DIGEST. It is by far the most meritorious publication that comes to my desk."

Senator William P. Frye: "It will afford immense assistance to the scholars of the country."

E. P. Powell, D. D., in Unity, Chicago, Ill.: "THE LITERARY DIGEST is an absolute necessity to those who would keep in line with the progress of thought and achievement. I do not see how any thinking man can get along without it."

10 Cents per Copy. \$3.00 per Year.

Send for descriptive circular.

FUNK & WAGNALLS COMPANY, New York.

Weigh your Crops with

scales whose accuracy cannot be questioned. Avoid loss and disputes by weighing stock, crops, etc., with the scales that are standard.

OSGOOD U. S. STANDARD SCALES

Ask your hardware or implement dealer for our catalogue. Write for our special offer.



OSGOOD SCALE CO.,
845 Central St. Binghamton, N. Y.

The High Street Tailors.

BOYS, THIS IS THE TIME
FOR SPRING SUITS.
YOU ALL KNOW THAT THE
HIGH STREET TAILORS
HAVE THE LATEST NOVEL-
TIES FOR THE
SPRING OF 1901 AT POPULAR
PRICES.

166 North High St.

Phone 1796.



Beggs



*The largest and
most perfect-
ly appointed store
in Columbus.*



*The largest and
most perfect
assortments in
Ohio.*

Satisfaction in Price Guaranteed.

The David C. Beggs Co.
COLUMBUS, OHIO.

**Carpets, Curtains, Wall
Paper, Etc.**

EVERYTHING IN SIGHT!

That is the claim made on this page last month for

Wells, Richardson & Co.'s Improved Butter Color

Butter colored with this color won, at the National Convention held at St. Paul, Minn., first and second in separator class, first and second in gathered cream class, and four out of five cups. Eighty per cent. of the entries were colored with the Improved Butter Color.

PRIZE WINNERS—SEPARATOR CLASS.

E. O. Quenvold, Owatonna, Minn 97
C. H. Jensen, Bernadotte, Minn 96½

GATHERED CREAM CLASS.

W. S. Noble, South Waterford, Me 91
M. Magnusson, Bee, Minn 90¾

CUP WINNERS.

Iowa---Marvin Powers, Corley 94.50
Illinois---F. E. Barrett, Union 93
South Dakota---O. L. Distad, De Smet . . . 93
Vermont---Wm. V. Beach, Charlotte . . . 93.50

They All Use

“The Kind That Has No Mud.”

ADVERTISEMENTS.

TO THE DEAF.

A rich lady cured of her Deafness and Noises in the head by Dr. Nicholson's Artificial Ear Drums, gave \$10,000 to his Institute, so that deaf people unable to procure the Ear Drums, may have them free. Address No. 9885-v. The Nicholson Institute, 780 Eighth Avenue, New York, U. S. A.

R. R. JOHNSTON,

THE CATERER,

TELEPHONE 899.

863 MT. VERNON AVE.

TAYLOR, WILLIAMS & CO.

COAL,

195 EAST
LONG ST.

COKE,

TELEPHONE
731.

ICE...

GOODMAN & CO.

THE LARGEST

TAILORING ESTABLISHMENT IN OHIO.

New Schultz Building, N. High St., - - COLUMBUS, OHIO

Discount to Students and Faculty.

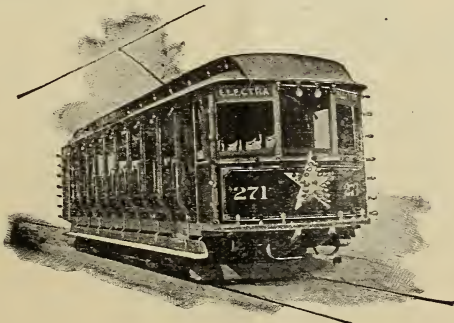
All Books of the O. S. U. Library
are bound by

The Seraphim Blank Book Company,

65 EAST LONG STREET.

The Columbus Railway Co.

The Car Service Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs.



Every State Institution Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls all lines of the city and the line to Westerville.

JUST A MINUTE!

Did you ever use a Combined Churn and Worker? What kind?
Were you satisfied with it? Did you ever use a

DISBROW

Combined Churn and Worker? If you have never used a **DISBROW**, you can't appreciate the advantages of a combined churn. Strong statement, isn't it? But it's true. Do you want proof? Ask other makers of combined churns why, if the machines they make NOW are better than the Disbrow, did they spend three years time and thousands of dollars trying to secure the Disbrow patents through the courts?

OWATONNA MFG. CO., Owatonna, Minn.
SOLE MANUFACTURERS.

CREAMERY PACKAGE MFG. CO.

General Sales Agents,

1, 3 and 5 W. Washington St., CHICAGO, ILL.

BRANCH HOUSES:

Minneapolis, Minn.

Waterloo, Iowa.

Kansas City, Mo.

Omaha, Neb.

OUR SPECIALTIES.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Eigin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizers, Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

Park Hotel

* * Columbus, Ohio.

Goodale and High Streets

Rates, \$2.00 per day.

Special Weekly and Monthly Rates.

Not in the Trust.

Brown & Arnold, Props.

ADVERTISEMENTS.

SMITH'S Academies of DANCING, DEPARTMENT and PHYSICAL CULTURE.

SMITH'S HOME ACADEMY,
Cor. FOURTH and LONG STS.

SMITH'S NEW HOME,
Cor. HIGH and GAY STS.

SPECIAL STUDENTS' CLASSES.

PUPILS CAN ENTER AT ANY TIME.

Our Terms are the Most Reasonable.

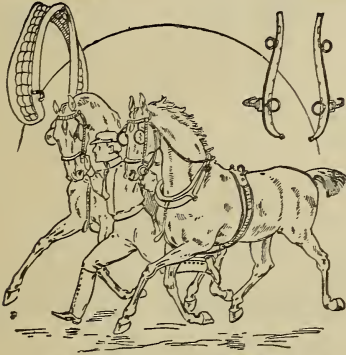
Gentlemen, ten lessons - - \$4.00.

Ladies, ten lessons - - \$3.00.

AND NO BETTER SERVICE AT ANY PRICE.

MAIN OFFICE: Gay and High Streets. Phones, Bell and Citizens, 1067,

BRANCH OFFICE: Fourth and Long Streets. Citizens Phone, 3521.



WM. BURDELL JR.,

MAKER OF HIGH GRADE

Buggy, Carriage and Team Harness.

Complete Line of Turf Goods, Plush and Fur
Robes, Horse Blankets of all kinds.

Everything needed for the stable.

Hand work only Send for
Catalogue.

81 North High Street. COLUMBUS, OHIO.

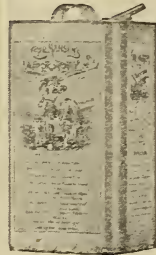
COME and use our tele-
phone, consult our
directory, and buy your
postage stamps at . .

KILER'S PHARMACY,

Corner Eighth Avenue and
High Street,

Telephone 886. COLUMBUS, OHIO.

CHR. HANSEN'S



DANISH BUTTER COLOR

A Pure Annatto Coloring

Not the Cheapest, but the Best. Not the Strong-
est, but the PUREST.

The Columbian Butter Color

is not a vegetable color, but is
guaranteed the strongest in the market, and in
every respect superior to every other except the
Danish.

Rennet Extract, Cheese Color, Rennet Tablets,
and Cheese Color Tablets for Farm Cheese Mak-
ing, Lactic Ferment, Marshall Rennett Test, Etc.

Manufactured only by

Chr. Hansen's Laboratory,

P. O. Box 1140. Little Falls, N. Y.

Chas. J. Palmer

Slate and Metal

Roofing

Galvanized Iron,
Skylights and Cornices.

Brass, Copper
and Zinc Work.

Repairing
a Specialty.

84-86 West Broad St.

COLUMBUS, O.

Telephone 1862.

You Should Know That

Star Wind Mills

Excel All Others.

Thirty years of practical experience
in the Manufacture of Wind
Mills and Water Supply
Goods.

Hoosier "Fast Mail" Iron Pumps

And Full Line of Cylinders.

Galvanized Steel and Wood Tanks.

All Sizes. A Strictly Up-to-
Date Line of Goods.

For prices and specifications,
address

Flint & Walling Mfg. Co.

415 North High St., COLUMBUS, O.

SEEDS

Clovers, Timothy, Blue Grass,

AND MANY OTHER GRASS SEEDS.

FARM SEEDS, VEGETABLE AND FLOWER SEEDS, BULBS, &c.

High-Grade Mixed Lawn
Seeds a Specialty.

SEED ANNUAL FREE ON APPLICATION.

LEADING CUT FLOWER DEALERS.

DECORATIONS FOR PARTIES AND WEDDINGS,
FLORAL DESIGNS, BOUQUETS, ETC.

LIVINGSTON SEED CO.

(Successors to A. W. Livingston's Sons.)

STORE—No. 114 North High Street, University Cars pass our doors.
TRIAL FARM—On Neil Avenue, South of University Farm

COLUMBUS, OHIO.

The Kauffman-Lattimer Co.

Wholesale Druggists

COLUMBUS, OHIO.



Laboratory Supplies for Schools
and Colleges a Specialty.

Circulating Library. Two Cents a Day.

LATEST BOOKS.

Student's Down-Town Rendezvous

Make your appointments to meet your friends at

Smythe's Book Store

Where you will find news to amuse, books to enter-
tain, and interested friends to instruct.

WE ARE THE STUDENT'S FRIENDS

Enter our circle and be one with us.

SMYTHE'S

Students' Supplies.

Stationery.

Big Four Route

GIVES BEST SERVICE TO

CLEVELAND,
BUFFALO, NEW
YORK, BOSTON,
DAYTON,
CINCINNATI,
INDIANAPOLIS,
ST. LOUIS
AND CHICAGO.

The Pan-American Exposition

AT BUFFALO IN 1901

Best reached via "BIG FOUR ROUTE" in
connection with Lake Shore & Mich.
Southern, and New York
Central R. R.

C. KROTZENBERGER, D. P. A.,
Columbus, Ohio.

WE INVITE

Everyone interested to visit our Electric
Plant and Underground Tunnel. Ushers
will gladly show you through and explain.
Please ask for a Ticket at the office and
mention this invitation.



The Acknowledged Headquarters for









CLOTHING,
HATS,
SHOES,
GENTS' FURN-
ISHINGS, Etc.

LAZARUS,

High and Town, Columbus, O.

Blackwood, Green & Co.

BUILDERS' HARDWARE,

Paints, Oil and Glass, Galvanized Iron
Cornice, Sky Lights, Slate, Tin and
Iron Roofing.      



STOVES AND HOUSE
FURNISHING GOODS.



624 North High Street,
COLUMBUS, OHIO.

Hamplin Printing Co.

H. P. WARD, Manager.

The Cleanest, Best Lighted, Most Up-to-date Printing
Plant in Central Ohio.

Entire Second Floor, Nos. 74, 76, 78, 80 East Gay Street,
Central Ohio Paper Company's New Building,

   COLUMBUS, OHIO.

FRANK C. KELTON.

WADE CONVERSE.

KELTON & CONVERSE,

Wholesale and Retail Dealers in

Lumber, Lath, Shingles,

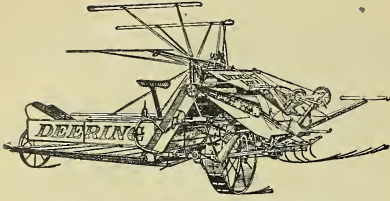


Doors, Sash, Blinds,
Door and Window Frames,
Mouldings, Etc.

Cor. Spring and Water Sts. Columbus, O.

...Telephone No. 279...

ADVERTISEMENTS.



DEERING IDEAL BINDER

Makes Harvesting Easy.

Light Draft Deering Ideal Binder.

Roller and Ball Bearings Reduce Draft.

Convenient Levers Lessen Labor. ♣ ♣

Made in the Largest Harvest Works
in the World.

First in Up-to-date Improvements.

A Boon to Man and Beast.

Will Harvest any Grain that Grows.

DEERING HARVESTER CO.

(A Copartnership.)

—CHICAGO.



SIMPLEX Patent Combined Churn and Butter Worker.

"FACILE" BABCOCK TESTERS.

"B. & W." BOILERS AND ENGINES.

"B. & W." GALVANIZED STEEL CHEESE VATS.

"SPRAGUE" ADJUSTABLE AND "HELMER" CONTINUOUS
PRESSURE GANG CHEESE PRESSES.

THE MARSCHALL RENNET TEST.

CHR. HANSEN'S DANISH DAIRY PREPARATIONS.

RENNET EXTRACT. BUTTER AND CHEESE COLOR.

The Above Specialties are Highly Recommended by Us.
Prices Quoted and Circulars Furnished upon Application.

D. H. BURRELL & CO.

LITTLE FALLS, N. Y.

The . . .
Champion

Mowers,
Reapers and
Binders

THE WARDER, BUSHNELL
AND GLESSNER COMPANY,
SPRINGFIELD, OHIO.

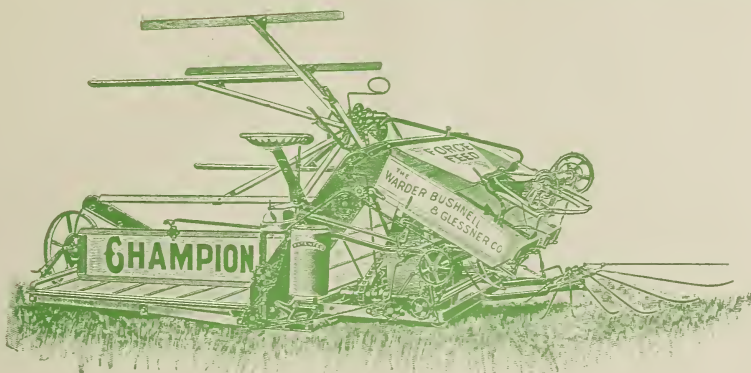
Largest and Most Complete Factory in the World engaged
 exclusively in making Grass and Grain
 Cutting Machinery.

Capacity, 225,000 Machines Yearly.

Agencies at every important town in United States and
 Europe.

Full Assortment of Repair Parts at all Agencies.

A complete system of duplication of parts is maintained on
 each style of Champion Machines, so that when Repair
 Parts are ordered they are sure to fit, and easily put on.



MORE MILK.

Gluten Feed will produce at least one quart more milk per day per cow. A grain ration made up of ground oats, corn, bran, middlings and corn meal can be substituted with one-half the quantity of Gluten Feed, and the result will be a saving in the actual cost of the grain ration. In addition to this saving, there is also an increase in the flow of milk, improvement in the condition of the cattle, which insures an improvement in the quality of the milk. What more can we say in behalf of Gluten Feed? Those who have fed it tell us it is the cheapest and best milk-producing feed on the market. Try it and convince yourself that our statements are correct.

DEPARTMENT O. S.

The Glucose Sugar Refining Co.,
CHICAGO, ILLINOIS.

GOLD MEDAL
AWARDED THE
Improved United States Separator.



SOLELY ON ITS MERITS.



The Highest Award to any Separator Manufactured in America.

THE ONLY SEPARATOR EXHIBITED AT PARIS IN SAME
STYLE AND FINISH AS FURNISHED TO DAIRYMEN

VERMONT FARM MACHINE CO., BELLOWS FALLS, VT.

